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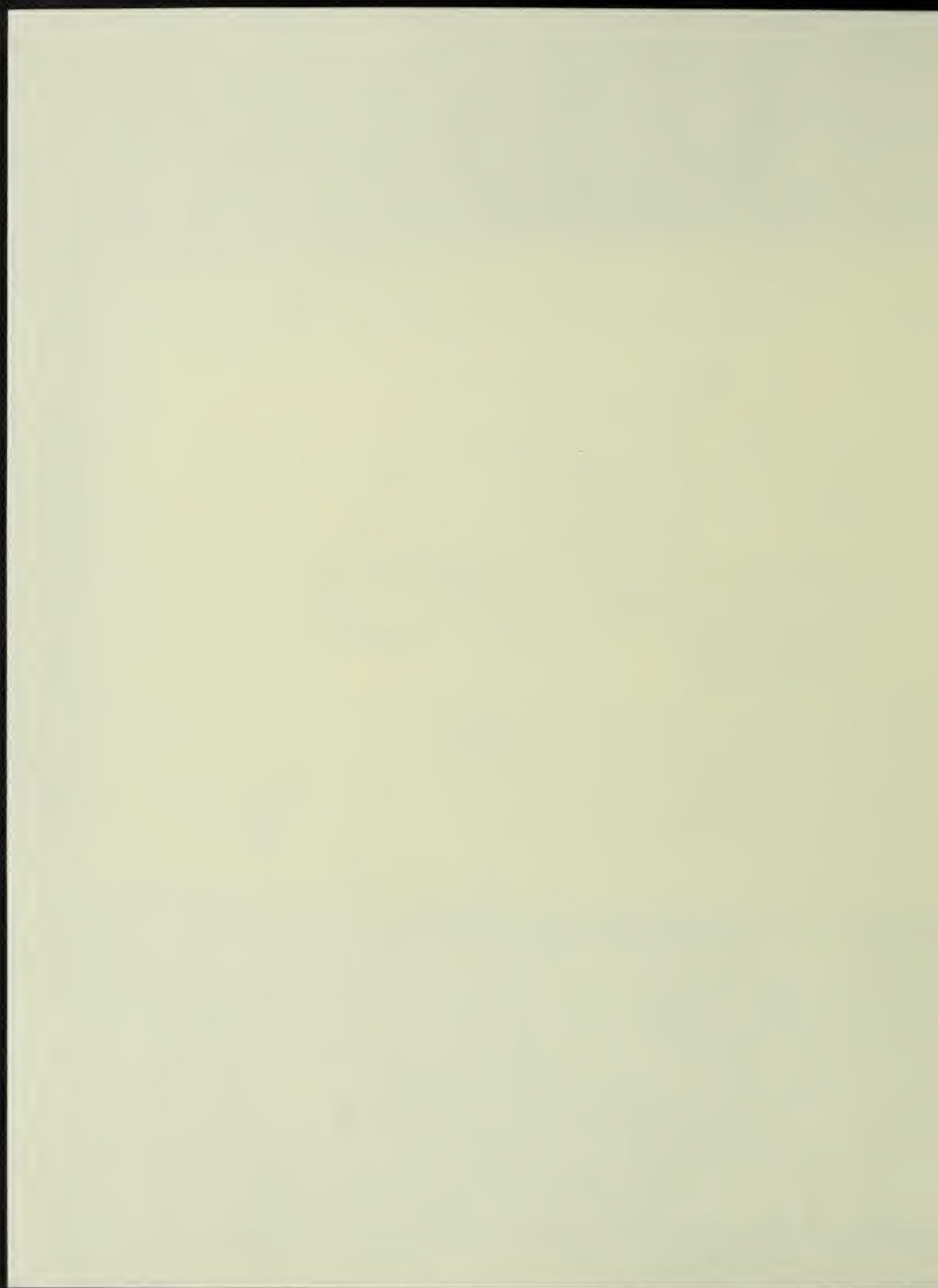
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ARGONNE COMPUTING NEWSLET 45A-11

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 23

NUMBER 1

JANUARY 1992

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UNIVERSITY OF ILLINOIS
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COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

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| Division Director | David Weber | A251 | 2-7155 | B22788 AT ANLVM |
| Computer Protection Program Manager | Jean Troyer | A237 | 2-7440 | B18216 AT ANLVM |
| Computing and Telecommunications Operations | Larry Amiot | B243 | 2-5432 | B10523 AT ANLVM |
| Computer Network | Bob McMahon | B239 | 2-7270 | B17385 AT ANLVM |
| Data Communications | Linda Winkler | B251 | 2-7236 | B32357 AT ANLVM |
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| Management Information Systems | Diane O'Brien | B151 | 2-7167 | B26424 AT ANLVM |
| Financial Systems | Nick Moore | D239 | 2-8075 | B31048 AT ANLVM |
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| Planning, Finance, and Administration | Mike Boxberger | A245 | 2-5638 | B34540 AT ANLVM |
| Scientific Applications and Research | Charles Mueller | A231 | 2-7153 | B11284 AT ANLVM |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by Marydale Caruthers with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

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During January 1992, the Computing and Telecommunications Division (CTD) will offer eight classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

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practices; and using many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will entail the use of Unix from ASCII terminals to reinforce the lecture content.

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Introduction to Wylbur for MVS Batch Computing (one 3-hour lecture with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS computing system. You can use Wylbur interactively to create and modify programs, data, and submit IBM MVS and Cray UNICOS batch jobs to review IBM MVS and Cray UNICOS output.

CMS with IBM 3270-Compatible Display (two 3-hour lectures with labs) is for users of IBM 3270-compatible display terminals or Apple Macintosh personal computers running the 3270 program, or ASCII terminals with the Protocol Converter. This class is for people who want to send or receive electronic mail; who want to organize files and obtain information from files; who want to create and modify data, programs, or text files; who want to use applications packages such as Cues, Script, and Tellagraf. The labs use terminals with the Hydra Protocol Converter,

but the principles learned will apply to all the terminals and access methods mentioned above. Everyone registering for the CMS class must have a CMS account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

...computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection

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Introduction to Unix (three 3-hour lectures with three 1-hour labs) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection

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Using SAS (two 3-hour sessions) includes examples of Statistical Analysis System (SAS) programs in CMS, although you can use the same SAS code in the MVS batch, VAX/VMS, and IBM PC systems. SAS is a powerful, easy-to-use computer system for data analysis. In addition to statistical analysis, SAS provides tools for information storage and retrieval, data modification and programming, report writing, and file handling. Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC is necessary.

MANAGEMENT INFORMATION SYSTEMS

HUMAN RESOURCE SYSTEM REPLACEMENT UPDATE

The current Human Resource System (HRS) that operates in CMS and uses the Inquire Database Management System is being replaced by a new version of the system. The replacement system will operate in CICS, the same computing environment as the other employee-related systems and the financial systems, providing users with the same "look and feel" for all administrative systems in this group. The new system shares a common architecture with the Information Organizer Reporting System and the financial applications so that Laboratory users will not have to learn multiple tools when accessing personnel and financial data.

The new HRS differs in many respects from the current system in that users have direct access to the production personnel databases for all inquiries and for updating certain data elements in employee records. Online processing uses full-screen terminals as opposed to line-by-line terminals in the old system. An enhanced reporting capability offers users the ability to tailor selection criteria for reports, and a more user-friendly security system is possible with the new computing environment.

Beginning in January 1992, HR plans to conduct user training for persons selected by division offices for the new system. Both systems will be operating for one to two months so that users may receive training and make the transition to the new system.

INTEGRATED FINANCIAL SYSTEM UPDATE

At the Financial Applications Committee to Effect Telesis (FACET) meeting on January 22, 1992, the Integrated Financial System (IFS) Project Team will present an overview of the reporting features of Information Organizer (IO) as part of FACET's continuing educational series. At the February 19, 1992, FACET meeting, the Project Team will describe the account inquiry features of IO. The IFS Information Organizer system is an account inquiry and reporting facility. IO allows users to maintain their own or others' financial report selection criteria, submit reruns and ad-hoc runs of reports, and to view IFS account information.

Beginning in January 1992, the Financial Applications Committee to Effect Telesis (FACET) meetings will be held on the **third working** Wednesday of each month, from 1:30 p.m. to 3:00 p.m. The FACET chairperson will issue a memo in January notifying all FACET members of the new location for FACET meetings. The exact dates are:

| | |
|-------------|--------------|
| January 22 | July 15 |
| February 19 | August 19 |
| March 18 | September 16 |
| April 15 | October 21 |
| May 20 | November 18 |
| June 17 | December 16 |

Formerly, FACET meetings were held on the second Wednesday of each month.

TRAINING MANAGEMENT SYSTEM UPDATE

The Laboratory has completed the first phase of the Argonne Training Management System (TMS). Environment, Safety, and Health (ESH), Human Resources (HR), and the Management Information Systems (MIS) area of CTD implemented the Phase I PC-based system in September 1991 to assist Laboratory management and users in recording and identifying necessary training. Training profiles were distributed to all employees and have been returned to ESH to update employee training records.

Phase II of the TMS encompasses developing the mainframe components of the system during the first quarter of this fiscal year. The new TMS system is being integrated into the Laboratory's other existing Human Resource Management Systems (HRMS) and will be available in January 1992 when user training begins.

The mainframe system has several major components (including online inquiry and update screens that process an individual's training needed, training taken, course enrollment, and course attendance) as well as screens that process course-related data (including course overview and course or session offerings). Another major part of the system is the user capability to choose reports from a menu, to tailor report selection criteria, and to submit the reports for printing at a CTD or a remote user's printer. Fifteen standard reports will be available with the initial release of the system, with more to be added as users define additional reporting needs. The TMS Interface Sub-System, which links the mainframe with PC-based modules, is the final component.

PERSONAL COMPUTING

MACINTOSH HYPERCARD DEVELOPERS KIT AVAILABLE

CTD has purchased a 25-user license for the Claris HyperCard Developers package, Version 2.1, for interested Apple Macintosh users. While the standard HyperCard application only allows users to view HyperCard stacks, the Developers package allows users to create HyperCard stacks (specialized HyperCard files for specific user needs). It allows you to create your own hypercard applications.

HyperCard is an application program used to organize information into "cards" that can be browsed in a sequential or any other manner. It can be used for a number of tasks, including organizing addresses or catalog inventories or serving as an interface to control external devices.

Claris requires that CTD maintain a record of users who receive the Developers package software. Therefore, to obtain a copy of the HyperCard Development package, you need to contact David Lifka at extension 2-3251 or at E-Mail address lifka@anl.gov. CTD charges \$30.00 per HyperCard package.

PUBLIC VOLUME FILESERVER NAME CHANGED

Apple Macintosh users can now mount AppleShare volume "Public Volume" on the Laboratory-wide AppleTalk. Public Volume is an AppleShare volume served by the AppleShare fileserver "CTDVAXserver" in zone "Public AlisaTalk." On Monday, January 6, 1992, this fileserver name will be changed from "CTDVAXserver" to "VAXserver."

The name change reflects the evolving role of this fileserver from primarily a CTD resource to a Laboratory-wide resource. This change will also affect AlisaShare users who have private AppleShare volumes served by this fileserver.

UNIX NEWS

ACCESSING CENTRAL PRINTERS VIA LPR

Unix workstations users can now access the central computing output devices. By using the line printer/spooler program "lpr" on a Unix workstation, users can send output to any of the devices listed in Table 1. To access these devices, you must have your Unix system administrator add the printer name to your workstation "/etc/printcap" file. The entry for the IBM 3800 laser printer would be similar to:

```
3800|IBM 3800 Laser Printer:\
:lp=:rm=anlvm.ctd.anl.gov:rp=3800:sd=/var/spool/3800:\
:lf=.usr/adm/lpd-errs:
```

Your system administrator will also need to create the directory "/var/spool/3800."

CTD expects some control information with the print file to aid in output distribution and formatting. The Unix command lpr should include the following flags when you send output to CTD printers:

- A capital "C" flag to specify your building or bin distribution code (that is, -CF30118 to route output to bin 18/19 in Building 221).
- A Fortran "f" flag to specify that your output has a Fortran carriage control character in column 1 of the print file.

- A symbolic link "s" flag to send large (>1 mega-byte) print files to CTD printers. (The file size limitation is a local variable and not a limitation of the CTD printers.)

The following command on a Sun workstation specifies the IBM 3800 laser printer, the Building 221 distribution bins, a Fortran listing with carriage control characters in column 1, and a file name of output.listing:

```
lpr -P3800 -CF30118 -f output.listing
```

Output sent to central printers via lpr is charged at published printing rates. If you have questions about using this print service, contact Rich Carlson at extension 2-7289 or at electronic mail address RACarlson@anl.gov.

| Table 1: CTD Central Printers Available Via Unix Workstation lpr | |
|--|---|
| 3800 | CTD IBM 3800 laser printer (Building 221) |
| RADS13 | CTD general user RADS impact printer (Building 221) |
| RADS13PR2 | CTD general user RADS PostScript LaserWriter (Building 221) |
| FICHE | CTD fiche unit (Building 221) |
| RADS14PR1 | CTD internal RADS PostScript LaserWriter (Building 221) |
| RADS14PR2 | CTD internal RADS PostScript LaserWriter (Building 221) |

VAX/VMS NEWS

MAINTENANCE RELEASE OF DISSPLA 11.0 INSTALLED ON CENTRAL VAX CLUSTER

A new version of Disspla 11.0 has been installed on the central VAX cluster. This release, Genlevel 9103, contains bug fixes. Computer Associates has also added more templates, including shaded contours, to codebook.

Genlevel 9103 was installed with an optional shareable image. The shareable image is created by pre-linking Disspla library modules. If you link your Disspla application to this shareable image, you can reduce link time and decrease the size of your Disspla application executables. You will need to relink any Disspla applications linked to the current Disspla shareable image.

To use Disspla 11.0, Genlevel 9103, before Monday, January 13, 1992, enter:

```
$ SETUP DISSPLA /V=NEW
```

No change is necessary after January 13. The Disspla 11.0, Genlevel 9103, environment will automatically be available to you when you log on.

If you have questions about Disspla, contact the User Services consultants at extension 2-5405.

BITS & BYTES

LINE-ORIENTED TSO DISCONTINUED

Effective Monday, January 6, 1992, CTD will no longer offer line-oriented access to Multiple Virtual Storage (MVS) Time Sharing Option (TSO). Users accessing MVS TSO through Systems Network Architecture (SNA) (and typically taking advantage of TSO's full-screen capabilities) will not be affected. Removing the line-oriented access to MVS TSO will remove the phrase "or TT for TSO" and the corresponding TT option from the line-by-line terminal logon banner.

An extensive examination of TSO activity over the past year identified only two users outside of CTD who still relied on line-oriented access to MVS TSO. These two users were able to adapt easily to the full-screen version of MVS TSO, so the need for obsolete line-oriented access to MVS TSO has been removed.

Removing the line-oriented terminal driver for MVS TSO permits CTD to decommission some little-used hardware and to simplify the installation of Resource Access Control Facility (RACF) 1.9 and MVS/XA.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

Computing and Telecommunications Documents

ANL Statement of Site Strategy for Computing Workstations (ANL/TM 458, REVISION 3) explains the overall Argonne strategy for defining, acquiring, using, and evaluating computing workstations and other automated office support systems. While the primary concern of this document is to ensure optimal integration of computing workstations in the hierarchy of computing that exists at ANL, it also sets forth guidelines for the controlled introduction of other microprocessor technologies that become available in the computing workstation environment.

A December 1991 addendum to the *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467) documents local changes and installation-dependent options to the Computer Associates (CA) Disspla software. This addendum includes a section on the X Window System.

Argonne National Laboratory Computing and Telecommunications Division Rates Revised December 2, 1991 lists the processing rates of various computers as well as provides information about the computing services, batch services, and interactive services. Computing rates are determined by the shift in effect (prime, overnight, or weekend) when the job starts. This revised rate sheet supersedes the rate sheet of May 24, 1991.

Survey of ANL Organization Plans for Word Processors, Personal Computers, Workstations, and Associated Software (ANL/TM 459, REVISION 3) supplements information in both the *ANL Statement of Site Strategy for Computing Workstations* (ANL/TM 458) and the *ANL Site Response for the DOE Information Technology Resources Long-Range Plan* (ANL/TM 466). This *Survey* documents each ANL organization's plans for office automation, identifies appropriate planners and other

contact people in those organizations, and promotes the sharing of this information among those people making plans for organizations and decisions about office automation.

Telebit T2500 Asynchronous Modem User's Guide with Operating Instructions (ANL/TM 492) helps users of the Telebit T2500 dial-up modem use the modem to access ANL computing systems from offsite. These instructions supplement the *Telebit T2500 Reference Manual* and the *Telebit T2500 Fast Start Guide*, which the Telebit Corporation supplies with the modem.

IBM Documents

The *IBM Interactive System Productivity Facility/Program Development Facility Version 2 Release 3 for MVS Edit and Edit Macros* (SC34-4121-00) describes (1) how to use the Program Development Facility (PDF), (2) how to write edit macros, (3) sample CLIST and program edit macros, (4) error handling and edit macro testing, and (5) the edit line, primary, and macro commands available for the Interactive System Productivity Facility (ISPF)/PDF. This document is for application and system programmers who develop and/or use the PDF editor and edit macro instructions. Users should be familiar with coding CLISTs or programs in the MVS environment.

The *IBM Interactive System Productivity Facility/Program Development Facility Version 2 Release 3 for MVS Guide* (SC34-4118-00) provides information about using PDF, including (1) introductory information, (2) library and dataset information, (3) using the PDF options, (4) understanding the output listing formats, (5) examples of character translation tables, (6) lists of abbreviations, (7) descriptions of allocation datasets, and (8) descriptions of the SuperC program. This document is for application programmers using the ISPF/PDF.

Cray Research, Inc. Documents

The *UPDATE Reference Manual* (SR-0013 K) describes UPDATE, a program that modifies, edits, and updates source language programs operating under UNICOS and COS on Cray Y-MP, Cray X-MP EA, and Cray X-MP computer systems and under UNICOS on Cray-2 systems. Readers should be familiar with the general features of COS or UNICOS.

University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (November 26, 1991) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of October 28, 1991.

Other Vendor Documents

The Waite Group's New C Primer Plus (0-672-22687-1) is a complete, easy-to-understand introduction to the C programming language for both the novice and experienced programmer. This document covers (1) the fundamentals of programming (including principles of structured code, step-wise refinement, and top-down design); (2) C itself (operators, expressions, statements, input/output, functions, and arrays and pointers); and (3) how to use special library functions, storage classes, string functions, data forms, and other advanced C skills. This document supersedes *Programming in C* (0-672-48420-X).

Viruscan/Clean-Up for IBM PC V84 is a 5 1/4" diskette with the current release of Viruscan and Clean-up, a disinfectant program for the IBM Personal Computer. These programs can detect and correct known viruses (such as Jerusalem B, Fish, Fish6, and Yankee Doodle). CTD requests that you not make copies of these programs for others to use, because our license is limited to 100 copies of each of these programs. Copies of this diskette are available at the Document Distribution Counter. CTD is keeping a master list of all persons to whom these programs have been distributed. This V84 diskette supersedes the V80 diskette.

BULLETIN

CTD TO CHARGE REDUCED HOLIDAY RATE FOR CRAY

The Computing Policy Committee has recommended and the Chief Financial Officer has approved reduced holiday rates for jobs submitted to the Cray X-MP. The reduced rate for the class y batch queue will begin 5:00 p.m. Friday, December 20, 1991 and will terminate at 7:00 a.m. Thursday, January 2, 1992. Jobs submitted to the y batch queue will be charged with a rate multiplier of .05 of

the prime shift class w batch rates. The resulting reduced y batch rates are: CPU (\$25.00/hr), storage occupancy (\$7.00) and I/O (\$0.016). Jobs submitted to the u, w, and x batch queues will be charged at the regular weekend rates. Cray disk storage will be charged at normal rates. CTD will allow Cray batch y queue users to set up tapes for their Cray jobs at times during the holiday period when CTD computer operators are available.

USERS GROUP HIGHLIGHTS

MINUTES OF THE COMPUTER USERS GROUP MEETING HELD DECEMBER 3, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

CTD Holiday Schedule

Gary Schlesselman (Computing and Telecommunications) reported on the periods of unattended operation of the CTD computers in building 221. From 4:30 p.m. December 24 and December 31 until 4:30 p.m. December 25 and January 1, the computers will be locked and operating unattended. Voice mail will be activated and operators will be checking in to see what could be done remotely if needed.

CTD Budget and Rates

Mike Boxberger (Computing and Telecommunications) gave a summary of the CTD budget for this fiscal year. The total for FY1992 is \$8270K compared to \$9746K for FY1991. For 10 months of FY1992, there will be no Cray payments because the computer will be paid for at the end of November. CTD is anticipating \$1763K in Laboratory Indirect funding which is associated primarily with network and other general activities performed by CTD. The rates will remain at the FY1991 levels even though this could mean a shortfall of about \$200K. The rates will be reviewed in the future and the CPC requested more information on use of the different systems.

HP-720 Available for User Testing

Dave Leibfritz (Computing and Telecommunications) reported the installation of an HP-720 workstation for user testing during December, 1991. The system has 32 megabytes of memory, one gigabyte of disk storage, Fortran, C, and the X-Windows system. The HP-720 is less expensive than the IBM RS6000, but does not have as much main memory. Although the HP has a faster clock speed (50 MHz vs 41 MHz), it is about a third slower in megaflop rating. Users interested in using the system should contact Dave at leibfritz@anl.gov.

There is also an NCD 17-inch color X-Window terminal in the demonstration room available for user use. The name is cassius.ctd.anl.gov and it is useable from a Telnet client.

Data Management Subcommittee Report

Bert Toppel (Reactor Analysis) reported on a Data Management Subcommittee meeting held to discuss the manner of controlling the quotas on the region-managed disks. CTD suggested that RACF be used to manage the space on these volumes. The subcommittee approved this request.

In response to a question about migration on the Cray disks. CTD stated that the disk utilization has leveled off, so there are no plans to institute migration on the Cray disks.

CPC Meeting Report

Pat Garner (Reactor Analysis) reported on the CPC meeting held on November 26. The CPC affirmed the recommendations of the Budget Subcommittee that the FY1992 budget for CTD be set at \$8.27M, with \$1.763M to come from Laboratory Indirect. The primary increase in Laboratory Indirect funding is to be used to establish a software manager position to oversee compliance with DOE Order 1330.1C and Laboratory-wide network activities. The remainder of the budget is to come from cost-based rates.

The Networking Subcommittee provided an update on their progress in establishing policies for Personal Computer Local Area Networks. Their discussions are continuing.

CTD began a presentation of their prioritized list of items to be funded in FY1992 with General Purpose Equipment (GPE) money. The amount is expected to be similar to last year's amount of \$380K; however, none of these funds will be made available until the CPC makes its recommendations on which projects should be funded. CTD will continue the presentation at the next CPC meeting.

The CUG meeting was adjourned at 3:34 p.m.

Ken Miles, CUG Secretary

There will be no CUG Meeting in January unless there is a urgent need.

MINUTES OF MACINTOSH USERS GROUP MEETING HELD DECEMBER 11, 1991

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m in Room A216 of Building 221.

Carol Rosignolo (ERD) discussed the new policy for posting software on the "Public Volume," also referred to as the "Public Apple Disk." She and Kevin Bailey (MSD) developed this policy with help from Barry Miller (CTD). The Public Volume Submission Procedure, the Public Volume Policy, the Volume Contents document, and the QuickMail submission form (PV Submission) are all posted on the Public Volume in the Submission Folder. To get a copy of the QuickMail form, Carol recommended that you enclose it in a QuickMail message to yourself. Then, on retrieving the enclosure, you can select the option to install the form. Carol stressed that the Public Volume submission should be complete before it is submitted so that evaluation can be completed rapidly. Documentation should be in a plain text or a TeachText format so that it will be accessible to all. The documentation should tell the purpose of the software, how to use the software, and what hardware and what application you need, including its version number and installation instructions. If the submission meets all the policy guidelines, it will be put into "TEST Folder" on the Public Volume.

A QuickMail notice will be sent to all ANL/MUG users asking them to evaluate the software and give feedback to Carol or Kevin. If the feedback is unfavorable or if they get no feedback, the software submission will be dropped. They are looking for items with broad appeal at ANL as there



WORKLOAD STATISTICS (OCTOBER 31 THROUGH NOVEMBER 26, 1991)

NUMBER OF ENROLLED USERS

| | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS | 1,201 | 1,175 | 425 |
| Wylbur | 1,618 | 1,545 | 317 |
| MVS TSO | 57 | 57 | 24 |
| CICS | 2,241 | 2,213 | 168 |
| MVS Batch | 2,241 | 2,213 | 610 |
| VAX/VMS | 679 | 663 | 230 |
| Cray | 360 | 359 | 109 |
| All Systems | 2,419 | 2,213 | 955 |

INTERACTIVE AND BATCH USE

| | NUMBER OF SESSIONS OR JOBS RUN | | | | SESSION TIME (HRS) | CPU TIME (HRS) |
|--------------------|--------------------------------|-------|---------|--------|--------------------|----------------|
| | PRIME | NIGHT | WEEKEND | TOTAL | | |
| INTERACTIVE | | | | | | |
| CMS | 10,556 | 1,978 | 1,471 | 14,005 | 36,756.4 | 85.65 |
| Wylbur | 5,576 | 215 | 205 | 5,996 | 5,679 | 3.61 |
| MVS TSO | 693 | 4 | 6 | 703 | 837.6 | 2.01 |
| CICS | * | * | * | * | * | * |
| VAX/VMS | 5,976 | 2,085 | 1,767 | 9,828 | 27,804.6 | 388.17 |
| Cray | 2,372 | 20 | 17 | 2,409 | 703.3. | 155.50 |
| IBM BATCH | | | | | | |
| Class U | 7,897 | 1,543 | 847 | 10,287 | ** | 18.96 |
| Class W | 13,470 | 1,636 | 608 | 15,714 | ** | 82.11 |
| Class X | 0 | 2,307 | 18 | 2,325 | ** | 25.74 |
| Class Y | 0 | 0 | 183 | 183 | ** | 11.66 |
| Nonmain | 15,473 | 1,601 | 1,111 | 18,185 | ** | 0.00 |
| Total | 36,840 | 7,087 | 2,767 | 46,694 | ** | 138.47 |
| CRAY BATCH | | | | | | |
| u | 738 | 20 | 17 | 775 | ** | 1.12 |
| w | 2,372 | 4 | 344 | 2,720 | ** | 17.18 |
| x | 1,289 | 65 | 95 | 1,449 | ** | 34.06 |
| y | 728 | 139 | 144 | 1,011 | ** | 79.49 |
| Total | 5,127 | 228 | 600 | 5,955 | ** | 131.85 |
| VMS BATCH | | | | | | |
| W BATCH | 262 | 227 | 96 | 585 | ** | 17.34 |
| X BATCH | 0 | 11 | 0 | 12 | ** | 291.72 |
| Y BATCH | 0 | 0 | 6 | 6 | ** | 0.07 |
| Total | 263 | 238 | 102 | 603 | ** | 309.13 |

INPUT/OUTPUT

| | |
|-----------------------------|------------|
| Lines Printed | |
| Local | 35,967,881 |
| Remote | 49,751,939 |
| Fiche | 42,660,316 |
| Tape Mounts | 6,621 |
| Microfiche Developed | 5,211 |
| Microfiche Frames Developed | 1,929,916 |

GRAPHICS

| | # OF JOBS | # OF FRAMES |
|-------------------|-----------|-------------|
| CalComp Jobs | 96 | * |
| Matrix 35mm Color | 28 | 67 |
| Matrix-8 x 10 | 0 | 0 |
| Matrix-Negative | 0 | 0 |

DATA MANAGEMENT

| | |
|-----------------------------|--------|
| Total Tapes Stored | 25,099 |
| Round Tapes Saved | 135 |
| Round Tapes Released | 580 |
| Cartridges Saved | 1,316 |
| Cartridges Released | 1,858 |
| Datasets Exported to Tape | 145 |
| Datasets Imported from Tape | 483 |

* not available

** not applicable

AVAILABILITY STATISTICS, BY MACHINE (OCTOBER 31 THROUGH NOVEMBER 27, 1991)

| | Monthly Totals | Hardware | Scheduled Software | Other | Hardware | Unscheduled Software | Other |
|------------------------------------|-------------------|----------|-----------------------|-------|----------|-------------------------|-------|
| CMS | | | | | | | |
| All Shifts | | | | | | | |
| Interruptions | 5.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 6.11 | 0.00 | 6.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | | | | | | | |
| Monday-Friday, 7:00 a.m.-7:00 p.m. | | | | | | | |
| Interruptions | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | | | | | | | |
| WYLBUR | | | | | | | |
| All Shifts | | | | | | | |
| Interruptions | 9.00 | 0.00 | 8.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Hrs Unavailable | 5.35 | 0.00 | 5.11 | 0.00 | 0.23 | 0.00 | 0.00 |
| MTF/Unscheduled | 666.65 | | | | 666.65 | 0.00 | |
| Monday-Friday, 7:00 a.m.-7:00 p.m. | | | | | | | |
| Interruptions | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 5.00 | 0.00 |
| Hrs Unavailable | 0.23 | 0.00 | 0.00 | 0.00 | 0.23 | 0.00 | 0.00 |
| MTF/Unscheduled | 239.76 | | | | | 239.76 | |
| MVS TSO | | | | | | | |
| All Shifts | | | | | | | |
| Interruptions | 8.00 | 0.00 | 8.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 5.25 | 0.00 | 5.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | 0.00 | | | | 0.00 | 0.00 | |
| Monday-Friday, 7:00 a.m.-7:00 p.m. | | | | | | | |
| Interruptions | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | 0.00 | | | | | 0.00 | |
| JES3 | | | | | | | |
| All Shifts | | | | | | | |
| Interruptions | 7.00 | 0.00 | 7.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 4.11 | 0.00 | 4.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | | | | | | | |
| Monday-Friday, 7:00 a.m.-7:00 p.m. | | | | | | | |
| Interruptions | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | 0.00 | | | | | 0.00 | |
| CICS | | | | | | | |
| All Shifts | | | | | | | |
| Interruptions | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | 0.00 | | | | | 0.00 | |
| Monday-Friday, 7:00 a.m.-7:00 p.m. | | | | | | | |
| Interruptions | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | 0.00 | | | | | 0.00 | |
| VAX/VMS (VAX 8700) | | | | | | | |
| All Shifts | | | | | | | |
| Interruptions | 5.00 | 1.00 | 3.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Hrs Unavailable | 10.83 | 3.90 | 6.51 | 0.00 | 0.41 | 0.00 | 0.00 |
| MTF/Unscheduled | 666.16 | | | | 666.16 | | |
| Monday-Friday, 7:00 a.m.-7:00 p.m. | | | | | | | |
| Interruptions | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hrs Unavailable | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MTF/Unscheduled | | | | | | | |
| VAX/VMS (VAX 6410) | | | | | | | |
| All Shifts | | | | | | | |
| Interruptions | 6.00 | 1.00 | 3.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| Hrs Unavailable | 9.45 | 2.68 | 6.16 | 0.00 | 0.00 | 0.60 | 0.00 |
| MTF/Unscheduled | 331.27 | | | | | 331.27 | |
| Monday-Friday, 7:00 a.m.-7:00 p.m. | | | | | | | |
| Interruptions | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| Hrs Unavailable | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 |
| MTF/Unscheduled | 119.70 | | | | | 119.70 | |
| CRAY | | | | | | | |
| All Shifts | | | | | | | |
| Interruptions | 12.00 | 4.00 | 3.00 | 0.00 | 1.00 | 4.00 | 0.00 |
| Hrs Unavailable | 20.78 | 14.28 | 3.16 | 0.00 | 0.36 | 2.96 | 0.00 |
| MTF/Unscheduled | 130.24 | | | | 651.21 | 162.80 | |
| Monday-Friday, 7:00 a.m.-7:00 p.m. | | | | | | | |
| Interruptions | 5.00 | 0.00 | 0.00 | 0.00 | 1.00 | 4.00 | 0.00 |
| Hrs Unavailable | 3.23 | 0.00 | 0.00 | 0.00 | 0.36 | 2.96 | 0.00 |
| MTF/Unscheduled | 47.33 | | | | 236.66 | 59.16 | |

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (OCTOBER 31 THROUGH NOVEMBER 26, 1991)

| CC | CCNAME | IBM | VAX | CRAY | NETWORK | PERIPHERAL | CCTOTAL |
|--|-----------------------------------|----------|----------|----------|----------|------------|-----------|
| ADVANCED PHOTON SOURCE | | | | | | | |
| 130 | ADVANCED PHOTON SOURCE DIV | \$221 | \$297 | \$0 | \$441 | \$3 | \$962 |
| 131 | ACCELERATOR SYS DIV | \$10 | \$0 | \$0 | \$2 | \$100 | \$112 |
| 132 | EXP FACIL DIV | \$91 | \$0 | \$0 | \$6 | \$17 | \$114 |
| 272 | ADVANCED PHOTON SOURCE | \$123 | \$2 | \$0 | \$153 | \$53 | \$331 |
| 340 | APS ASD MANAGEMENT | \$15 | \$0 | \$0 | \$0 | \$32 | \$47 |
| 341 | APS ACCELERATOR PHYSICS | \$232 | \$2,721 | \$0 | \$104 | \$378 | \$3,436 |
| 342 | APS DIAGNOSTICS | \$7 | \$14 | \$0 | \$0 | \$113 | \$134 |
| 343 | APS LINAC | \$0 | \$142 | \$0 | \$1 | \$0 | \$143 |
| 344 | APS RF | \$3 | \$47 | \$0 | \$15 | \$92 | \$158 |
| 345 | APS VACUUM/MECHANICAL ENG. | \$8 | \$3,130 | \$0 | \$121 | \$1,480 | \$4,739 |
| 347 | APS CONTROLS | \$42 | \$32 | \$0 | \$0 | \$5 | \$109 |
| 348 | APS MAGNETS | \$52 | \$16 | \$0 | \$10 | \$7 | \$85 |
| 349 | APS POWER SUPPLIES | \$26 | \$0 | \$0 | \$0 | \$60 | \$86 |
| 350 | APS DIVISION MANAGEMENT | \$0 | \$0 | \$0 | \$0 | \$72 | \$72 |
| 351 | APS INSERTION DEVICES | \$44 | \$777 | \$0 | \$68 | \$266 | \$1,155 |
| 352 | APS ENGINEERED SYSTEMS | \$27 | \$881 | \$0 | \$17 | \$79 | \$1,004 |
| 353 | APS BEAM LINE INSTRUMENTATION | \$14 | \$1,045 | \$88 | \$376 | \$489 | \$2,012 |
| 360 | APS CONVENTIONAL FACILITIES | \$27 | \$0 | \$0 | \$8 | \$1 | \$35 |
| 361 | APS PROJECT DIRECTION | \$40 | \$65 | \$0 | \$14 | \$0 | \$120 |
| 362 | APS MANAGEMENT GENERAL | \$14 | \$0 | \$0 | \$0 | \$15 | \$30 |
| SUBTOTAL | | \$996 | \$9,200 | \$89 | \$1,322 | \$3,277 | \$14,883 |
| ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH | | | | | | | |
| 110 | BIO & MED RES DIV | \$2,448 | \$542 | \$82 | \$1,015 | \$1,625 | \$5,712 |
| 125 | TECHNOLOGY TRANSFER CENTER | \$69 | \$9 | \$0 | \$4 | \$113 | \$195 |
| 149 | ENVIRONMENTAL RESEARCH DIV | \$1,388 | \$818 | \$96 | \$1,020 | \$1,096 | \$4,418 |
| 155 | ENERGY SYSTEMS DIVISION | \$1,676 | \$2,179 | \$832 | \$894 | \$1,068 | \$6,650 |
| 165 | ENV ASSES & INFO SCI DIV | \$5,831 | \$4,142 | \$679 | \$1,269 | \$3,812 | \$15,734 |
| 246 | ES-NAT'L ENERGY SOFTWARE CTR | \$52 | \$0 | \$0 | \$641 | \$525 | \$1,218 |
| 274 | ENER/ENV/BIO RES PROG ADM | \$94 | \$0 | \$0 | \$4 | \$163 | \$261 |
| SUBTOTAL | | \$11,559 | \$7,691 | \$1,690 | \$4,848 | \$8,402 | \$34,189 |
| ENGINEERING RESEARCH | | | | | | | |
| 102 | EBR-II PROJECT-ANL WEST | \$1,598 | \$8 | \$1,236 | \$2,648 | \$236 | \$5,727 |
| 104 | FUELS AND PROCESSES DIVISION | \$1,762 | \$166 | \$3 | \$657 | \$211 | \$2,799 |
| 107 | CHEMICAL TECHNOLOGY DIVISION | \$664 | \$215 | \$0 | \$628 | \$298 | \$1,805 |
| 112 | REACTOR ENGINEERING DIVISION | \$5,945 | \$967 | \$3,035 | \$2,914 | \$2,604 | \$15,465 |
| 114 | MATLS & COMP TECH DIV | \$3,591 | \$2,260 | \$1,562 | \$1,224 | \$892 | \$9,529 |
| 115 | ENGINEERING PHYSICS DIVISION | \$2,494 | \$735 | \$3,664 | \$1,745 | \$906 | \$9,545 |
| 116 | REACTOR ANALYSIS DIVISION | \$31,818 | \$8,494 | \$42,563 | \$13,524 | \$8,713 | \$105,112 |
| 117 | APPLIED PHYSICS-ANL WEST | \$1,891 | \$113 | \$13,986 | \$211 | \$295 | \$16,495 |
| 118 | FUEL CYCLE DIVISION | \$970 | \$3,652 | \$3 | \$400 | \$1,027 | \$6,053 |
| 171 | ENG RES PROG DIR | \$5 | \$0 | \$0 | \$0 | \$105 | \$111 |
| 197 | SPECIAL PROJECTS OFFICE | \$335 | \$1 | \$0 | \$44 | \$149 | \$529 |
| 211 | ENGR PHYS DIV - DESIGN ENGR | \$24 | \$0 | \$0 | \$10 | \$3,205 | \$3,239 |
| 269 | ANALYTICAL CHEMISTRY LABORATORY | \$82 | \$8 | \$0 | \$8 | \$280 | \$376 |
| 271 | ENG RES PROG ADMIN | \$210 | \$0 | \$0 | \$3 | \$218 | \$432 |
| SUBTOTAL | | \$51,390 | \$16,619 | \$66,053 | \$24,014 | \$19,140 | \$177,216 |
| PHYSICAL RESEARCH | | | | | | | |
| 105 | MATERIALS SCIENCE DIVISION | \$582 | \$4,742 | \$311 | \$4,000 | \$602 | \$10,237 |
| 109 | PHYSICS DIV | \$1,507 | \$421 | \$21 | \$1,235 | \$549 | \$3,733 |
| 120 | CHEMISTRY DIV | \$1,059 | \$11,717 | \$3,435 | \$463 | \$725 | \$17,400 |
| 136 | INT PULSE NEUT SOURCE PROG | \$642 | \$182 | \$261 | \$401 | \$288 | \$1,774 |
| 137 | HIGH ENERGY PHYSICS DIV | \$391 | \$998 | \$3,030 | \$744 | \$749 | \$5,912 |
| 139 | DIV OF EDUCATIONAL PROGRAMS | \$310 | \$3 | \$0 | \$189 | \$210 | \$712 |
| 145 | MATHAMATICS & COMPUTER SCI DIV | \$189 | \$45 | \$177 | \$29 | \$4,822 | \$5,263 |
| 146 | CTD DIV - SCI APPL & RES | \$71 | \$975 | \$24,575 | \$1,117 | \$933 | \$27,671 |
| 273 | PHYSICAL RESEARCH PROGRAM ADMIN | \$67 | \$15 | \$0 | \$49 | \$154 | \$285 |
| SUBTOTAL | | \$4,818 | \$19,097 | \$31,811 | \$8,228 | \$9,033 | \$72,987 |
| EXTERNAL | | | | | | | |
| 751 | FERMI NATIONAL LABORATORY | \$554 | \$0 | \$0 | \$956 | \$470 | \$1,979 |
| 752 | NAVY | \$8,412 | \$0 | \$0 | \$1,200 | \$3,995 | \$13,607 |
| 753 | MORGANTOWN ENERGY TECH CENTER | \$10 | \$0 | \$0 | \$0 | \$0 | \$10 |
| 754 | DEPARTMENT OF ENERGY AT ANL | \$47 | \$11 | \$0 | \$262 | \$140 | \$460 |
| 760 | ABBOTT LABORATORIES | \$3 | \$0 | \$44 | \$0 | \$0 | \$47 |
| 763 | GENERAL ELECTRIC COMPANY | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| 766 | BECHTEL NATIONAL, INC. | \$0 | \$26 | \$9 | \$0 | \$1 | \$36 |
| 775 | SMITHSONIAN | \$0 | \$0 | \$0 | \$0 | \$3 | \$3 |
| 777 | UNIVERSITY OF CHICAGO AT ANL | \$13 | \$0 | \$0 | \$177 | \$0 | \$191 |
| 778 | ARGONNE CREDIT UNION | \$5 | \$0 | \$0 | \$0 | \$0 | \$5 |
| 779 | UNIVERSITY OF ILLINOIS AT CHICAGO | \$5 | \$0 | \$0 | \$0 | \$0 | \$5 |
| 780 | NEW BRUNSWICK LABORATORY | \$11 | \$0 | \$0 | \$0 | \$525 | \$536 |
| 781 | STATE OF ILL. DEPT. MENTAL HEALTH | \$0 | \$0 | \$0 | \$0 | \$8 | \$8 |
| 782 | PACKER ENGINEERING | \$3 | \$28 | \$0 | \$2 | \$0 | \$33 |
| 783 | WEST VALLEY NUCLEAR SERVICES CO | \$115 | \$0 | \$0 | \$1 | \$34 | \$151 |
| 784 | SSC LABORATORY | \$0 | \$32 | \$151 | \$0 | \$0 | \$183 |
| 787 | ILLINOIS INSTITUTE OF TECHNOLOGY | \$0 | \$81 | \$1 | \$1 | \$0 | \$83 |
| 790 | GRUMANN AEROSPACE | \$0 | \$0 | \$0 | \$0 | \$15 | \$15 |
| SUBTOTAL | | \$9,180 | \$177 | \$205 | \$2,600 | \$5,190 | \$17,352 |

| CC | CCNAME | IBM | VAX | CRAY | NETWORK | PERIPHERAL | CCTOTAL |
|------------|---------------------------------|-----------|----------|----------|----------|------------|-----------|
| OPERATIONS | | | | | | | |
| 143 | SUPP SERV DIV - ELEC DEPT | \$147 | \$2 | \$0 | \$339 | \$255 | \$743 |
| 148 | HUMAN RESOURCES-MEDICAL DEPT | \$1,481 | \$0 | \$371 | \$0 | \$2,051 | \$2,051 |
| 150 | SUPPORT SERV DIV - SPEC MATLS | \$128 | \$0 | \$15 | \$0 | \$131 | \$275 |
| 161 | IPD-TECH INFO SERV | \$344 | \$18,732 | \$0 | \$3,129 | \$1,224 | \$23,430 |
| 201 | OFFICE OF THE DIRECTOR | \$201 | \$0 | \$0 | \$166 | \$225 | \$593 |
| 202 | OFC OF CHIEF OPER OFCR | \$13 | \$0 | \$0 | \$109 | \$101 | \$223 |
| 210 | SUPP SERV DIV - CENT SHOPS | \$289 | \$0 | \$0 | \$85 | \$328 | \$702 |
| 216 | SUPPORT SERVICES DIVISION | \$79 | \$0 | \$0 | \$47 | \$234 | \$341 |
| 222 | PLANT FAC & SERV-LODGING FAC | \$240 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 232 | SUPPORT SERV DIV - SECURITY | \$262 | \$343 | \$0 | \$422 | \$427 | \$1,454 |
| 234 | ESH DIV-HEALTH PHY | \$785 | \$18 | \$0 | \$183 | \$366 | \$1,352 |
| 235 | ESH DIV | \$5 | \$0 | \$0 | \$0 | \$100 | \$105 |
| 236 | ESH DIV-FIRE DEPT | \$23,166 | \$0 | \$0 | \$0 | \$0 | \$23,166 |
| 245 | COMPUTING AND TELECOM DIV | \$3,166 | \$0 | \$0 | \$559 | \$1,939 | \$5,665 |
| 247 | COMP & TEL DIV - COM SERV | \$129 | \$452 | \$0 | \$38 | \$205 | \$824 |
| 260 | IPD-MEDIA SERV DEPT | \$6 | \$0 | \$0 | \$2 | \$0 | \$8 |
| 265 | IPD-TECH COM SERV | \$842 | \$0 | \$0 | \$227 | \$171 | \$1,240 |
| 275 | OFFICE OF PUBLIC AFFAIRS | \$34 | \$0 | \$0 | \$1 | \$13 | \$48 |
| 276 | OFC PUB AF - MOTN PIC UNIT | \$80 | \$135 | \$0 | \$0 | \$112 | \$337 |
| 288 | INF & PUBL DIV | \$0 | \$0 | \$0 | \$0 | \$80 | \$80 |
| 296 | TELECOM COST/RECOVERY | \$4,911 | \$0 | \$0 | \$1,326 | \$576 | \$6,812 |
| 315 | SUPP SERV DIV-MATLS & SERV | \$0 | \$0 | \$0 | \$0 | \$162 | \$162 |
| 316 | PLANT FAC & SERV-VEH MAINT | \$20 | \$0 | \$0 | \$0 | \$104 | \$125 |
| 317 | PLANT FAC & SERV-DRIV&RIG SERV | \$0 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 319 | SUPP SERV DIV-TRAVEL OFC | \$34 | \$0 | \$0 | \$0 | \$102 | \$136 |
| 322 | SUPP SERV DIV-PROCUREMENT | \$2 | \$0 | \$0 | \$0 | \$0 | \$2 |
| 331 | EQO-INDIRECT | \$308 | \$0 | \$0 | \$55 | \$542 | \$905 |
| 333 | ENVR SAFE HEALTH & QA OVERSIGH | \$10 | \$1 | \$0 | \$0 | \$1 | \$12 |
| 336 | SUPP SERV DIV - INSPECTION | \$47,965 | \$0 | \$0 | \$3,399 | \$9,620 | \$60,985 |
| 400 | OFC OF CHIEF FIN OFFICER | \$0 | \$0 | \$0 | \$50 | \$100 | \$150 |
| 401 | ACCOUNTING | \$8 | \$0 | \$0 | \$0 | \$0 | \$8 |
| 402 | OCF-DE | \$0 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 403 | BUDGET OFFICE | \$17,656 | \$0 | \$0 | \$1,683 | \$2,262 | \$21,601 |
| 410 | HUMAN RESOURCES DEPARTMENT | \$49 | \$0 | \$0 | \$53 | \$100 | \$202 |
| 412 | AFFIRM ACTION PROGRAM | \$179 | \$0 | \$0 | \$89 | \$211 | \$479 |
| 501 | PLANT FAC & SERV-BLDG MAINT | \$30 | \$0 | \$0 | \$0 | \$100 | \$133 |
| 502 | PLANT FAC & SERV-INSTALLATIONS | \$3 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 503 | PLANT FAC & SERV-GROUNDS | \$3 | \$0 | \$0 | \$0 | \$100 | \$103 |
| 504 | PLANT FAC & SERV-CUSTODIAL | \$37 | \$0 | \$0 | \$70 | \$100 | \$207 |
| 505 | PLANT FAC & SERV-WASTE MGMT OP | \$369 | \$0 | \$0 | \$27 | \$347 | \$743 |
| 506 | PLANT FAC & SERV-PLANT MGR OFC | \$0 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 510 | PLANT FAC & SERV-UTILITY SYST | \$1,131 | \$6 | \$0 | \$246 | \$61 | \$1,444 |
| 512 | PLANT FAC & SERV-FAC PLNG/ENG | \$214 | \$1 | \$0 | \$7 | \$103 | \$325 |
| 530 | SITE MGRS OFC-ANL WEST | \$130 | \$0 | \$0 | \$19 | \$100 | \$249 |
| 531 | HUMAN RESOURCES-AW | \$791 | \$0 | \$0 | \$219 | \$250 | \$1,260 |
| 532 | SPECIAL MATLS-ANL WEST | \$0 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 533 | ACCOUNTING-ANL WEST | \$0 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 534 | PURCHASING-ANL WEST | \$0 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 535 | SECURITY - ANL WEST | \$0 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 536 | ENVIRONMENT, SAFETY & HEALTH-AW | \$0 | \$0 | \$0 | \$0 | \$102 | \$112 |
| 537 | INFORMATION SERVICE-ANL WEST | \$96 | \$0 | \$0 | \$0 | \$100 | \$100 |
| 538 | SUPPLY-AW | \$110 | \$0 | \$0 | \$9 | \$100 | \$204 |
| 548 | ANL WEST GENERAL EXPENSE | \$114 | \$0 | \$0 | \$36 | \$0 | \$147 |
| 550 | COMPUTER APPL & SERV - ANL-W | \$26 | \$0 | \$0 | \$12 | \$100 | \$227 |
| 554 | MACHINE SHOP-ANL WEST | \$104 | \$0 | \$0 | \$3 | \$100 | \$129 |
| 556 | SITE ENGRG-ANL WEST | \$33 | \$2 | \$0 | \$26 | \$100 | \$230 |
| 557 | PLANT SERVICES-AW-SERVICE REQ | \$3 | \$0 | \$0 | \$5 | \$100 | \$141 |
| 558 | PLANT SERVICES-AW-FUNCTION | \$3 | \$0 | \$0 | \$0 | \$0 | \$3 |
| 561 | OFC OF QUALITY ASSURANCE - AW | \$0 | \$0 | \$0 | \$0 | \$101 | \$104 |
| 570 | | \$0 | \$0 | \$0 | \$0 | \$1 | \$1 |
| SUBTOTAL | | \$105,744 | \$19,695 | \$0 | \$17,957 | \$26,639 | \$170,036 |
| TOTAL | | \$183,688 | \$72,479 | \$99,848 | \$58,968 | \$71,681 | \$486,665 |

COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance | Onsite (Illinois) | Onsite (Idaho) | Offsite (Area Code 708) |
|--|---------------------------------------|-------------------|----------------------------|
| Network Operations Center | 2-5421 | 8-252-5421 | 252-5421 |
| Current System Status Recorded Message | 2-5466 | 8-252-5466 | 252-5466 |
| User Consultant | 2-5405 | 8-252-5405 | 252-5405 |
| Documentation | 2-5405 | 8-252-5405 | 252-5405 |
| Computer Operations | 2-5421 | 8-252-5421 | 252-5421 |
| VM/SP Operator | 2-8442 | 8-252-8442 | 252-8442 |
| RADS Maintenance | 2-7273 | n.a. | 252-7273 |
| Computer Callback Service | 1-800-332-1478 (only within Illinois) | | |
| CICS, CMS, Wylbur, and TSO Interactive Computing Services | | | |
| IBM 3270 Protocol Converter | | | |
| 1200 to 19.2K Bits Per Second (Onsite) | 2-3270 | n.a. | |
| 1200 to 2400 Bits Per Second (Offsite) | | | 252-3270 |
| 9600 to 19.2K Bits Per Second (Offsite) | | | 252-3219 |
| X.25 Terminal Multiplexor | | | |
| 300 to 19.2K Bits Per Second(Onsite) | 2-2525 | n.a. | |
| 1200 to 2400 Bits Per Second (Offsite) | | | 252-2525 |
| 9600 to 19.2K Bits Per Second (Offsite) | | | 252-2519 |
| IBM 3174 Cluster Controller | 2-3174 | n.a. | n.a. |
| 1,200 Bits Per Second Full-Duplex | | | |
| (Bell 212 and Hayes Compatible Modems) | 2-2212 | n.a. | 252-2212 |
| 1,200 Bits Per Second Full-Duplex | | | |
| (Vadic 3400 Compatible Modems) | 2-7612 | n.a. | 252-7612 |
| 300 Bits Per Second | 2-7603* | n.a. | 252-7603* |
| * When using a 300 bits per second modem, you must use a capital "P" to logon. | | | |
| Batch Remote Job Entry Service | | | |
| 2,000 or 2,400 Bits Per Second | | | |
| (Bell 201A and 201C Compatible Modems) | 2-7989 | n.a. | 252-7989 |
| 4,800 Bits Per Second | | | |
| (Bell 208B Compatible Modems) | 2-7573 | n.a. | 252-7573 |
| Central DEC VAX Cluster | | | |
| 1200 to 19.2K Bits Per Second (Onsite) | 2-8700 | n.a. | |
| 1200 to 2400 Bits Per Second (Offsite) | | | 252-8700 |
| 9600 to 19.2K Bits Per Second (Offsite) | | | 252-8745 |
| Argonne TCP/IP Network | | | |
| 1200 to 19.2K Bits Per Second (Onsite) | 2-5588 | n.a. | |
| 1200 to 2400 Bits Per Second (Offsite) | | | 252-5588 |
| 9600 to 19.2K Bits Per Second (Offsite) | | | 252-4726 |
| Argonne MFEnet Dial-Up | | | |
| 300 to 19.2K Bits Per Second | 2-7920 | n.a. | 252-7920 |

COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

| | MVS JES3 Batch, UNICOS Wylbur, and TSO | VM/XA | VMS |
|-----------------------|---|------------------------------|------------------------------|
| Monday to Thursday | 00:00-04:00** 07:00-24:00 | 00:00-04:00** 07:00-24:00 | 00:00-04:00** 07:00-24:00 |
| Friday to Sunday | 00:00-24:00 | 00:00-24:00 | 00:00-24:00 |

** Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



SUBJECT INDEX FOR CALENDAR YEAR 1992 (1/92)

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Argonne National Laboratory
Computing and Telecommunications Division
January 1992

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering eight classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: January 8, 1992 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336, REVISION 2)
Recommended Documentation for Computer Users at ANL (ANL/TM 379, REVISION 2)
Guide to Telecommunications at ANL (ANL/TM 422, REVISION 1)

Instructor: Fred Moszur

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: January 9, 1992 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *VMS User's Manual* (AA-LA98B-TE)

Instructor: Dave Lifka

INTRODUCTION TO UNIX

Goals: To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.

Length of Class: Three 3-hour lectures and three 1-hour labs

Dates and Time: January 13, 14, and 15, 1992 (Monday, Tuesday, and Wednesday)
9:00 a.m. to noon (Lecture)
One-hour Lab each afternoon

Location: Building 221, Room A-216 (Lecture)
Building 221, Room A-261 (Lab)

Suggested Reading: *A Practical Guide to the Unix System* (0-8053-0243-3)

Instructor: Dave Leibfritz

PROGRAMMING IN VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.

Length of Class: One 3-hour session

Date and Time: January 16, 1992 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

INTRODUCTION TO UNICOS

Goals: To review the basics of Unix-based Cray UNICOS file systems and shell programming. To learn how to compile and load Cray Fortran programs. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.

Length of Class: One 3-hour session

Date and Time: January 20, 1992 (Monday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *A Practical Guide to the Unix System* (0-8053-0243-3)
UNICOS Primer (SG-2010 6.0)
ANL Supplement to the UNICOS Primer (ANL/TM 460)

Instructor: Steve Karlovsky

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

Length of Class: One 3-hour lecture with lab

Date and Time: January 21, 1992 (Tuesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals: To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal capable of using the Hydra Protocol Converter. To learn to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.

Length of Class: Two 3-hour lectures with labs

Dates and Time: January 21 and 22, 1992 (Tuesday and Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer (SC23-0368-0)*
CMS at ANL (ANL/TM 423, REVISION 2)

Instructor: Pete Bertoncini

USING SAS

Goals: To develop familiarity with the Statistical Analysis System (SAS), to become familiar with its flexible input mechanisms (which are capable of reading virtually any format of data and easily permit selection of data), to learn to use some basic reporting features, and to become aware of the capabilities made possible by a variety of SAS procedures.

Prerequisite: Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC

Length of Class: Two 3-hour sessions

Dates and Time: January 23 and 28, 1992 (Thursday and Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *SAS Introductory Guide*

Instructor: Mike Thommes

To register for a class, call extension 2-5405.



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1.86/5:
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ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 23

NUMBER 2

FEBRUARY 1992

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- Another Cray Rate Discount Planned 3107

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- Online Inventory of Computing Documents Available in CMS, VAX/VMS, and Unix 3107

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- New Color Hardcopy Service Available 3108

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- Integrated Financial System Update 3108

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DETACHABLE COLOR HARDCOPY TABLES

DEPOSITORY

MAR 3 1 1992

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN



"First Among Equals"
Only you can do it!

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

| | | Room | Phone | Electronic Mail Address |
|---|--------------------------|------|--------|--------------------------------|
| Division Director | Mike Boxberger (Acting) | A251 | 2-7155 | B34540 AT ANLVM |
| Computer Protection Program Manager | Jean Troyer | A237 | 2-7440 | B18216 AT ANLVM |
| Computing and Telecommunications Operations | Larry Amiot | B243 | 2-5432 | B10523 AT ANLVM |
| Computer Network | Bob McMahon | B239 | 2-7270 | B17385 AT ANLVM |
| Data Communications | Linda Winkler | B251 | 2-7236 | B32357 AT ANLVM |
| Service Engineering | Paul Phillips | D118 | 2-4343 | B36679 AT ANLVM |
| Network and Computer Operations | Gary Schlesselman | A113 | 2-5437 | B09819 AT ANLVM |
| Day and Weekend Operation | Bob Bilshausen | A134 | 2-5421 | |
| Document Distribution Counter | | A134 | | |
| Evening and Overnight Operation | Mike Monczynski | A134 | 2-5421 | |
| Tape Librarian | Sandra Vasko | A134 | 2-7681 | B18669 AT ANLVM |
| Trouble Reporting | | A134 | 2-5421 | NOC AT ANL.GOV |
| Systems Programming | John Volmer (Acting) | B211 | 2-5449 | B32831 AT ACHILLES.CTD.ANL.GOV |
| Telephone Services | Allen Winter | B247 | 2-2764 | B07059 AT ANLVM |
| User Services | Fred Moszur | A121 | 2-7419 | B27564 AT ANLVM |
| Computer Use Authorizations | Fran Carnaghi | A147 | 2-5425 | B27596 AT ANLVM |
| Consultants | | A139 | 2-5405 | CONSULT AT ANLVM |
| Documentation Advice | | A139 | 2-5405 | CONSULT AT ANLVM |
| Education and Assistance | Pete Bertoncini (Acting) | E101 | 2-4827 | B15013 AT ANLVM |
| Management Information Systems | Diane O'Brien | B151 | 2-7167 | B26424 AT ANLVM |
| Financial Systems | Nick Moore | D239 | 2-8075 | B31048 AT ANLVM |
| Human Resource Systems | Bob Hischier | B147 | 2-7272 | B22639 AT ANLVM |
| Information and Production Services | Miriam Bretscher | B139 | 2-7252 | B26187 AT ANLVM |
| Materials and Plant Systems | Rich Slade | B159 | 2-7329 | B32848 AT ANLVM |
| Planning, Finance, and Administration | Mike Boxberger | A245 | 2-5638 | B34540 AT ANLVM |
| Scientific Applications and Research | Charles Mueller | A231 | 2-7153 | B11284 AT ANLVM |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 4/490, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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COMPUTING COMMENTS

CRAY HOLIDAY RATE REDUCTION YIELDS STRONG RESPONSE

In late December, 1991, the Computing and Telecommunications Division (CTD) offered reduced holiday rates to users of the Cray X-MP computer. CTD lowered the central processor rate on the X-MP from the previous rate of \$150 per hour to \$25 per hour from December 20, 1991, to January 2, 1992. Memory occupancy charges and I/O charges were also lowered.

CTD had anticipated low usage of the Cray X-MP during the holiday shutdown. The temporary rate reduction provided additional incentive to ensure that this important resource would be properly used and to enable some users to perform important computations sooner than would otherwise have been possible.

The resulting workload did indeed keep the X-MP busy throughout the laboratory shutdown. Twenty-four users from six divisions accounted for the usage. For the entire period of 302 CPU hours available, 252 hours (83 percent) were consumed by users. Further, during the period from December 24, 1991, to January 2, 1992, the processor was 100 percent busy.

ANOTHER CRAY RATE DISCOUNT PLANNED

In light of the significant response to the inexpensive high-performance computing offered during the holiday season, the Computing Policy Committee has recommended and the Chief Financial Officer has approved a second Cray X-MP rate discount offer. For a limited time beginning at 7:00 p.m. Friday, February 14 (Valentine's Day), 1992, Class z will be available on the Cray X-MP at a CPU rate of \$75 per hour. Memory and I/O charges will also be lowered for Class z to 15 percent of CTD's base (Class w) rate.

CTD will make Class z available until 7:00 p.m. Friday, February 28, 1992. If the discount rate succeeds in increasing utilization and attracting new users to the Cray X-MP, CTD plans to extend the discount period until 7:00 a.m. Monday, March 16, 1992.

Class z will execute at the lowest priority among the batch queues. Therefore, users with turnaround deadlines may need to use higher priority job classes.

CMS NEWS

ONLINE INVENTORY OF COMPUTING DOCUMENTS AVAILABLE IN CMS, VAX/VMS, AND UNIX

The DOCUMENT program is available in CMS, VAX/VMS, and the central Sun Unix servers to provide online information contained in *Recommended Documentation for Computer Users at ANL* (ANL/TM 379). This capability provides users with a convenient way to determine what documents are available for distribution by CTD. The software also provides users the ability to order documents easily. In addition to providing titles, the DOCUMENT program provides price, current date of publication, and the date of the most current addendum (if any). The date field indicates the most current versions in the CTD inventory; the addendum date reflects vendor technical newsletters or locally written addenda that CTD automatically distributes with the current base document.

To request document information in CMS or the central VAX cluster, enter:

DOCUMENT topic

where "topic" is a portion of the title of the document, the document-code number, or a category of documents (such as Fortran). To request document information in CMS, the central VAX cluster, or from the achilles Sun server, enter:

document topic

where "topic" is a single word with more than one character but less than 20 characters. **DOCUMENT** will display the document information at your terminal or workstation.

To obtain further information on **DOCUMENT** in CMS or VMS, enter:

HELP DOCUMENT

To obtain further information on DOCUMENT on the achilles Sun server, enter:

`man document`

GRAPHICS NEWS

NEW COLOR HARDCOPY SERVICE AVAILABLE

CTD has implemented a new service that provides both distributed computer and central computer users access to color transparencies and prints. CTD has acquired a Seiko ColorPoint PS PostScript-compatible printer that is available via the Laboratory-wide Ethernet network.

Table 1 (printed on heavy paper with Table 2 at the end of this *Newsletter* for your use as a reference tool) indicates how to obtain color transparencies by sending PostScript output files to the Seiko from various computing environments. Table 2 indicates how to obtain color transparencies by sending graphics metafiles to the Seiko. To obtain a color print instead of a color transparency, replace ANLCLRT1 in the Table 1 or Table 2 examples with ANLCLRP1.

Follow the guidelines in Table 1 and Table 2. These guidelines ensure that output can be properly distributed. Output that cannot be properly identified will be held by the computer operators until the appropriate user completes a claim form; output handled in this manner incurs an additional charge.

Users who do not currently have a central computing account should contact Account Services at extension 2-5425 so that output charges can be processed automatically. The charge for color transparencies is \$3.00 for each 8 1/2-by-11 sheet; the charge for color prints is \$1.75 for each 8 1/2-by-11 sheet.

Various software programs such as Aldus Page-Maker and LctraSet's Design Studio require page description files (PDFs--also called PPDs, APDs, and LPDs) to take full advantage of the Seiko printer. Apple Macintosh program PDFs can be obtained from the ANL Output Services folder on the AlisaShare Public Volume, and IBM PC program PDFs can be copied from floppy diskettes available from Mike Thommes (extension 2-5461).

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM UPDATE

In January 1992, the Integrated Financial System (IFS) Project Team tested and applied a new feature of the most recent release of Information Expert (IE). This feature, called Local Shared Resource (LSR) pools, is used to tune Virtual Storage Access Method (VSAM) files accessed randomly by IE. LSR provides virtual storage buffer pools to hold records when VSAM files are processed randomly.

The Project Team applied the LSR pools to the Accounts Payable (AP) system daily batch job processing. Because the volume of AP data has grown since the system's implementation in July 1991, the duration of the nightly batch processing has grown from two hours to eight. By applying the LSR feature of IE to the jobs in the nightly batch processing of AP, we reduced the duration of that batch processing to about two and one-half hours and reduced the daily job cost by over \$200.

The Project Team has begun to apply the same VSAM tuning techniques to the IFS General Ledger reports and has seen up to a 99% reduction in the number of VSAM input/output operations. The Project Team will begin to test these techniques on the monthly IFS service center reports to determine if their run-times can be reduced. The Project Team is working with the Human Resources analysts to use the LSR pools with the Training Management System (TMS) reports and have seen similar run-time improvements.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the third working Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m. We reported previously that the monthly FACET meetings would be moved to a new location; however, FACET management has determined that the meetings will continue to be held in Building 202, Room B-169. FACET meetings will be held on the third working Wednesday of each month in 1992 rather than on the second Wednesday as in 1991.

PERSONAL COMPUTING

LABORATORY-WIDE E-MAIL EXPANDS

CTD activities in electronic mail communication serve to expand electronic mail capabilities at Argonne so that electronic mail can be more easily interchanged among users in heterogeneous computing environments (e.g., AppleTalk, PC LANs, Unix, DECnet, etc.) can exchange mail with any other computing environment.

To promote electronic mail communication among workstations and computers, CTD will add support for two widely used electronic mail products: QuickMail and cc:Mail. QuickMail is the dominant choice for electronic mail among Apple Macintosh users at ANL. Moreover, the QuickMail products for Apple Macintosh and for IBM Personal Computers enable those users to use electronic mail to exchange Excel spreadsheets and MS Word documents. cc:Mail is a prominent choice for electronic mail for IBM Personal Computers at DOE, other national laboratories, and an increasing number of ANL divisions.

CTD efforts to implement cc:Mail gateways extend electronic mail to include personal computer local area networks. A Laboratory-wide QuickMail gateway has been implemented to centralize administration activities and ensure high reliability. Both capabilities are discussed in additional detail in the following articles in this *Newsletter*.

CTD IMPLEMENTS SMTP GATEWAY FOR PERSONAL COMPUTER E-MAIL

CTD has installed an electronic mail gateway that allows personal computer users on a personal computer local area network (LAN) to exchange electronic mail with users on the Laboratory-wide Transmission Control Protocol/Internet Protocol (TCP/IP) Ethernet.

CTD users of IBM Personal Computers (PCs) use the cc:Mail product and the cc:Mail Simple Mail Transport Protocol (SMTP) gateway to exchange electronic mail with the larger community of electronic mail users at Argonne. Other divisions are installing the cc:Mail SMTP gateway to enable LAN

users to participate in Laboratory-wide electronic mail. When these products are installed at your division, your PC E-mail users can communicate with users on central computers, divisional VAX computers, Sun computers, and remote Internet users.

The advantage of the system is that mail can be sent and received directly from the desktop without the need to logon first to another computer.

The product is an SMTP gateway running with a standard LAN E-mail software package. In CTD's system, cc:Mail runs on the network server, and the gateway software is installed on a dedicated Personal Computer, which runs both the Xerox Network System [XNS] and TCP/IP network protocols. The gateway must be physically connected to the Laboratory-wide network through a CISCO router or an LDI-400 LANmark connection.

The cc:Mail SMTP gateway translates outbound cc:Mail messages from the cc:Mail format to the RFC-822 message format used by SMTP. Incoming messages are translated in the opposite manner.

The cc:Mail and cc:Mail SMTP gateway products work with a variety of LANs including 3Com 3+Share, Microsoft LAN Manager, and Novell Netware. (PCs with Pathworks can use a VAX for an electronic mail gateway). Divisions with LANs of IBM PCs can avail themselves of electronic mail by acquiring the following components:

1. The cc:Mail LAN E-mail package with user licenses for all the PCs on the LAN.
2. The cc:MAIL SMTP gateway software.
3. An XT-based or AT-based Personal Computer with a hard disk and two Ethernet cards to allow the gateway to run two separate transport protocols.
4. An LDI-400 LANmark connection or a CISCO router to connect the local area network to the Laboratory-wide network.

For further information and assistance, call Jim Regula at extension 2-7622 or via electronic mail: regula@anl.gov.

**QMGATE TO PROVIDE INTERNET/QUICKMAIL
GATEWAY FOR MAC/IBM PC USERS**

CTD has installed a Laboratory-wide QuickMail/Simple Mail Transfer Protocol (SMTP) gateway called QMGATE. This gateway provides a electronic mail route between QuickMail and the Internet. To send mail to registered QuickMail users through this gateway, use the address format:

`firstname_lastname@qmgate.anl.gov`

To send mail from QuickMail to Internet users, use the special address function of QuickMail to record the Internet address of your intended recipient and then select QMGATE as your "MailCenter."

CTD will maintain this gateway and a Laboratory-wide QuickMail user database. This database will contain the names of anyone who frequently sends or receives mail from QuickMail users. To be added to this database, contact your local Apple Macintosh Network Administrator.

This gateway is currently available for testing during February, 1992. After February, if there are no problems, it will become a production service and the current divisional gateways will be decommissioned. CTD plans to implement a nominal subscription fee for gateway license, maintenance, and other operational costs later this fiscal year.

The CTD Network Operations Center will handle any difficulties in the service. CTD also has plans to assist Apple Macintosh and Personal Computer users who wish to use QuickMail but whose divisions do not have a QuickMail server. Interested users should contact David Lifka, extension 2-3521, for details.

**MACINTOSH TN3270 VERSION 2.3D26
AVAILABLE**

The tn3270 program for the Apple Macintosh allows Macintosh users connected to either the Laboratory-wide AppleTalk or the Laboratory-wide Ethernet to conduct remote full-screen sessions on the CMS, CICS, or Wylbur systems. Brown University distributes a new version of tn3270 available for the Apple Macintosh that works with the MacTCP product and also allows you to have a full screen VM session with up to 130 columns and 50 lines of text provided that your monitor is large enough. If

you have a 13-inch monitor, it will allow you up to 104 columns and 34 lines of text. You may get a copy of this program on the Public Volume in AppleTalk zone "Public AlisaTalk" on file server "VAXserver."

Users who are not already using tn3270 or NCSA Telnet will need to obtain an IP address and other configuration information from their division network administrator. Failure to coordinate addresses properly can cause disruption in the network.

TELECOMMUNICATIONS NEWS**CTD PROVIDES NETWORK TIME PROTOCOL
SERVICE**

CTD has acquired the Public Domain version of Network Time Protocol (NTP) from the University of Maryland (NTP Version 3.4) and has installed it on a CTD network file server. This service can be used by Unix hosts with NTP software provided by CTD (see "How to Obtain NTP" below), by VMS hosts running TGV Multinet, or by any host that runs the NTP protocol. NTP is a system designed to keep the clocks of network-connected hosts synchronized with an official time standard. This service is frequently used in client/server-based software systems such as data collection and transaction processing.

How NTP Works

NTP specifies a protocol for communicating time information between network-connected hosts. Time servers running NTP are arranged in a hierarchy with the most reliable time sources at the top of the tree. This tree structure is composed of layers called strata. The servers in stratum one are connected to some sort of time standard such as a timecode receiver or precision oscillator. The stratum one servers synchronize with each other by using NTP. Servers at the lower strata (higher numbered strata) depend on several of these upper layer servers to provide synchronization for their local clocks and they in turn provide synchronization to servers in lower strata.

For more information on NTP see the references listed below.

NTP at Argonne

To ensure an efficient NTP system at Argonne, users should follow these guidelines in configuring NTP on their systems.

1. Do not link your clients to an offsite time server if any other configuration would be adequate.
2. If you have only one or two clients who require service, link them to the CTD time server (achilles.ctd.anl.gov).
3. If you have several hosts which need NTP service, link one to the CTD time server and use it to serve the other clients.
4. Link to the CTD time server by using the "server" statement in the configuration file.
5. Send a mail message to support@achilles.ctd.anl.gov when you link to the CTD time server. This message should include (a) the name and/or IP addresses of all clients linking to the CTD time server (b) the name, division, phone and E-mail address of contact/Net manager responsible for these machines.

A client configuration file suitable for use in 2 and 3 above is available via FTP from achilles (see "How To Obtain NTP" below). You can use this file as is on Sun4 clients. The "precision" and "tickadj" parameters may need to be modified for other systems. You can do this by using the instructions included in the source code archives.

How to Obtain NTP in Unix

NTP is available via anonymous FTP from achilles. Table 3 lists the files of interest:

Please note that the availability of Sun 4 binaries is a by-product of the installation of NTP on the Sun 4 server and should not be construed as any kind of favoritism on the part of CTD. The source code should compile on other architectures.

Table 3: NTP Files

| <i>Filename</i> | <i>Contents</i> |
|------------------------------|--|
| pub/NTP/README | Explains what is in the NTP directory |
| pub/NTP/rfc1119.ps | rfc # 1119 (NTP) PostScript |
| pub/NTP/ntp-su.tar | Archive of the source code |
| pub/NTP/SUN4/ntp | NTP query program (Sun4 executable) |
| pub/NTP/SUN4/ntpd | NTP Server Daemon (Sun4 executable) |
| pub/NTP/SUN4/ntpd.c | ntpd Monitor (Sun4 executable) |
| pub/NTP/SUN4/ntp.client.conf | Config file suitable for Sun4 client machines at Argonne |

To pick up the software, follow these steps:

1. Create a directory to hold the software on your local UNIX machine. Enter:
`mkdir <directory name>`
2. To access this new directory, enter:
`cd`
3. Initiate FTP to Achilles. Enter:
`ftp -i achilles.ctd.anl.gov`
4. Respond to FTP with a user name. Enter:
`anonymous`
5. Respond to the password prompt with your badge number or your name.
6. Change FTP's mode to binary. Enter:
`binary`
7. Change to the appropriate directory. Enter:
`cd pub/NTP`
8. Set your local directory. Enter:
`lcd`
9. Get the files. To get only the source codes, enter:
`mget ntp*`

To get all of the files, enter:


```
mget * SUN4/*
```

10. Exit FTP. Enter:
- ```
quit
```

### **How to Obtain NTP in VAX/VMS**

VMS machines can use the NTP system provided in the TGV MultiNet system. The client should link to the CTD time server by using the "server" parameter.

### **If You Have Trouble**

Difficulties with NTP service such as bugs or inability to link with the CTD time server should be reported to support@achilles.ctd.anl.gov. For consulting help, call Mike Shaffer, extension 2- 8181.

### **For more information**

1. See also the documentation included with the NTP source code.
2. See also Internet Request For Comment (RFC) #1119
3. See also the *MultiNet System Administrators Guide* (for VMS).

### **GUIDELINES FOR INSTALLING A TCP/IP HOST AT ANL**

Before attempting to install a Transmission Control Protocol/ Internet Protocol (TCP/IP) host on the ANL Laboratory-wide network, you should familiarize yourself with guidelines recommended by CTD and adopted by the Network Managers Working Group. These guidelines have been established to ensure smooth network operations across the entire Laboratory.

CTD has obtained a block of IP addresses for ANL use and has assigned blocks of numbers to divisional representatives, that is, representatives of each division or program on the Network Managers Working Group. The Computing Policy Committee

established this group of representatives to manage the additions and changes to the Laboratory-wide network.

To obtain an IP address for your host, you should contact your divisional representative before installing a computer running the TCP/IP protocol suite on the ANL Laboratory-wide network.

To locate other hosts on the Internet by name instead of address, you should use the Domain Name Service feature of the TCP/IP protocol. CTD operates three domain nameservers for the Laboratory. Their addresses are:

```
dns1.ctd.anl.gov 130.202.20.5
dns2.ctd.anl.gov 146.137.96.3
dns3.ctd.anl.gov 130.202.20.3
```

TCP/IP networks use a gateway to route packets between different networks and subnetworks. To enable your host to send and receive packets to hosts on other networks (onsite and offsite), you must define a default gateway or have your host listen to dynamic routing information distributed on the network. Dynamic routing information is distributed (broadcast) on the Laboratory-wide backbone network by two CTD routers. On most Unix hosts, you must start the routing daemon known as "in.routed" to listen to dynamic routing information. CTD recommends enabling a dynamic routing instead of defining a static gateway because the gateway address may change over time.

Once your host is configured, you need to register it with the ANL nameserver so that other hosts can communicate with your host. At Argonne, we have established a naming convention for TCP/IP hosts whereby the host is assigned a name:

```
machine.div.anl.gov
```

where "machine" identifies the host, and "div" is the abbreviation for the division.

To register your host with the Argonne nameserver, please send an electronic mail message to hostmaster@anl.gov and include the following information: hostname, IP address, location, person responsible. For assistance, contact your divisional network manager or the CTD computer network section at extension 2-7236.

### Requirements for Apple Macintoshes and PCs

Apple Macintosh or personal computer users who are currently using NCSA Telnet or tn3270 must update their CONFIG.TEL files with the three addresses listed above. Apple Macintosh users can obtain a copy of the current CONFIG.TEL file on AlisaTalk Public Volume.

### LOOKING FOR INFO ON THE INTERNET? LET ARCHIE HELP

Many Internet sites serve as archives for useful data, information, and software. The problem is how to find the site with the information you need. You may know that the software you need is out there, but it can be difficult to find. The School of Computer Science at McGill University has developed a solution to the problem--"archie."

Archie is a pair of software tools: the server and the user program. The server maintains a list of more than 600 Internet File Transfer Protocol (FTP) archive sites. Each night software executes an anonymous FTP to a subset of these sites and fetches a recursive directory listing of each, which it stores in a database. The servers update 1/30th of the list each night, so that information for each site gets updated about once a month, balancing timely updates against unnecessary network load.

The second tool is the interesting one as far as the users are concerned. This program, called archie, allows users to query the database. Use Telnet to access one of the three sites that provide public access to archie:

```
archie.ans.net
archie.unl.edu
quiche.cs.mcgill.ca
```

and login as user archie. If prompted for a password, enter **archie**. The **archie>** prompt will appear. Enter **help** for more information. Table 4 summarizes and describes archie commands.

Users can ask archie to search for specific name strings. For example, "prog c++" would find all occurrences of the string "c++" and would tell you which hosts have entries with this string, the size of the program, its last modification date, and where it can be found on the host along with some other useful information. In this example, you could thus find

those archive sites that are storing the "c++" compiler. With one central database for all the archive sites, the time and effort you need to find a specific program on the network is greatly reduced.

Complete listings of the various anonymous ftp sites that archie keeps in the database are available via the **site** command. For a list of the sites archie keeps track of, see the **list** command.

Archie also maintains a "Software Description Database" which consists of the names and descriptions of various software packages, documents, and datasets that are kept on anonymous ftp archive sites all around the Internet. The **whatis** command allows you to search this database.

Table 4: Archie Commands

| COMMAND       | DESCRIPTION                                                      |
|---------------|------------------------------------------------------------------|
| <b>quit</b>   | <b>exit archie</b>                                               |
| <b>exit</b>   | <b>same as "quit"</b>                                            |
| <b>help</b>   | <b>obtains the entire list of commands</b>                       |
| <b>list</b>   | <b>lists the sites in the archie database</b>                    |
| <b>prog</b>   | <b>searches the database for a file</b>                          |
| <b>site</b>   | <b>lists the files at an archive site</b>                        |
| <b>whatis</b> | <b>searches for keyword in the software description database</b> |

### NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,485 computers at over 1,240 sites. Since the last *Newsletter* article in December, 1991, the following universities and organizations have joined BITnet:



Academic Computer Center--Bialystok, Poland  
 Antioch College  
 Bulgarian Academy of Sciences--Sofia  
 Federal University of Para--Brazil  
 Federal University of Pelotas--Brazil  
 Institute for Studies in Electronics--Morelos, Mexico  
 International Research Center for Japanese Studies--  
 Kyoto  
 Kogakuin University--Tokyo  
 Marinha--Rio de Janeiro  
 Masaryk University--Brno, Czechoslovakia  
 National Council of Scientific and Technical  
 Research (IAFE)--Buenos Aires  
 National University of Rosario--Argentina  
 National University of the Northeast--Corrientes,  
 Argentina  
 SookMyung Women's University--Seoul  
 Soong Sil University--Seoul  
 State University of New York Cayuga Community  
 College--Auburn, NY  
 State University of New York Fashion Institute of  
 Technology--New York City  
 Texas Legislative Commission--Austin  
 University of Aquila--Italy  
 University of Buenos Aires  
 University of Szeged--Hungary

For a complete list of organizations in the BIT-  
 net network and their nodenames, enter (in CMS, the  
 CTD VAX cluster, or MVS Wylbur):

HELP BITNET NODES

## UNIX NEWS

### CTD OFFERS A RANGE OF UNIX SERVICES FOR SCIENTIFIC COMPUTING

Unix-style computing has become the *de facto* standard computing environment for scientific computing. CTD provides users of the Unix computing environment with services that include (1) Unix workstation installation and administration assistance, (2) education, (3) consulting assistance, (4) network file service for scientific computing, (5) specialized application programs, (6) Unix computing resources, (7) benchmarking and evaluation of new Unix workstations, and (8) distributed processing.

CTD provides service to divisions on an as needed basis to assist in the installation and system administration of Unix workstations and X terminals. In particular, available staff are experienced with NCD X terminals, Sun workstations, Silicon Graphics workstations, and IBM RISC stations. Depending on the need, CTD has responded to service requests requiring from several days to several months of effort. For more information, contact Doug Engert at extension 2-5444.

CTD provides introductory Unix classes and overview classes of the X Window System which are regularly announced in the *Newsletter*. Moreover, CTD has provided and will continue to provide classes tailored to division-specific needs. To set up a class for users in your division, contact David Leibfritz at extension 2-6596.

The /n2 network file system (NFS) with four gigabytes of disk space is available as a network file service primarily for large data files used by the Cray. A Unix workstation user can enroll for /n2 usage to store and retrieve files. The /n2 file system is backed up each Monday, Wednesday, and Saturday. For assistance, call Joe Midlock, extension 2-5447.

CTD makes available specialized applications and computing resources on the Sun SparcServer 4/490 known by the network name `achilles.ctd.anl.gov`. In addition to the standard Sun Unix operating environment, special software has been acquired for this server and is available to users with accounts. Current software available on achilles includes C, Fortran, and C++ programming languages; Mathematica 2.0; Exclaim (an X Window-based spreadsheet); ArborTex TeX (text formatting); FrameMaker 2.1 for document processing; Disspla 11.0; MIT X11R4 (graphics libraries); Sun OpenWindows (graphical user interface); and the GNU Emacs editor. In addition, CTD has installed the MIT X11R5 graphics library and is testing it.

Currently, CTD charges users a \$20 monthly subscription fee plus disk space occupancy charges for a Sun server account. We are developing a method for charging for actual resources (connect time, CPU, memory, etc.) used. Users requiring Unix processing cycles or these special software packages may obtain an account by contacting Account Services at extension 2-5425.



CTD continues to make arrangements with vendors for evaluation loans of high-performance scientific workstations and provides users with assistance in porting applications for benchmarking and performance evaluation. Recent evaluations have included an SGI 340 VGX, an IBM RS 6000 Model 550, an HP Model 720, and a color NCD X Terminal. For details on recent experiences or to participate in future evaluations, contact Larry Rudsinski at extension 2-7219.

CTD has installed message-passing libraries on a variety of Unix computers to provide Fortran or C programs with parallel processing capabilities that can use a network of workstations. For more information, contact Dave Leibfritz at extension 2-6596.

User Services consultants are available at extension 2-5405 to assist in general Unix questions pertaining to shell programming, file systems, file transfers, etc.

#### **ANLPHONE AVAILABLE FOR SUN WORKSTATIONS**

The online database of employee address, telephone and E-mail information is now available in the Sun Unix computing environment. Users of the achilles Sun 4/490 server can query this database by entering the command:

```
anlphone
```

The user of the ANLPHONE utility may search for employee information by providing an employee badge number or last name.

For additional information, contact Pete Bertoni at extension 2-4827.

## **VAX/VMS NEWS**

### **CTD UPGRADES ANLPHONE FOR VAX CLUSTER**

On Monday, February 10, 1992, CTD will replace the ANLPHONE utility on the central VAX cluster with a new version. The new ANLPHONE displays the response to your request at your terminal instead of sending it to you in a file. The old ANLPHONE utility will continue to be available for a short time. To access the old utility, enter:

```
setup njeutil
```

Divisions may install the new ANLPHONE utility on local VMS computers with the Multinet network system. For additional information, please call Linda Clark at extension 2-8403.

## **BITS & BYTES**

### **RECENTLY UPDATED AND PUBLISHED DOCUMENTS**

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### **Cray Research, Inc. Documents**

The *Cray Standard C Programmer's Reference Manual* (SR-2074 3.0) describes the Cray Standard C features and summarizes Cray-specific details of the American National Standards Institute (ANSI) standard C language. Readers should have a working knowledge of the C programming language and the Unix-Based Cray Operating System (UNICOS). This document supersedes the *Cray Standard C Programmer's Reference Manual* (SR-2074).

#### **IBM Documents**

The *IBM TSO Extensions Version 2 Command Reference* (SC28-1881-3) describes the syntax and function of the commands and subcommands of the TSO/E command language and Session Manager. It provides only reference material and assumes you are experienced in the use of TSO/E and Session Manager. The two sections in this document are "TSO/E Commands and Subcommands" and "Session Manager Commands." This document supersedes the *OS/VS2 TSO Command Language Reference* (GC28-0646-4).

The *IBM TSO Extensions Version 2 User's Guide* (SC28-1880-2) is a general guide for using Time Sharing Option Extensions (TSO/E). It expands the concepts and basic tasks that are presented in the *TSO/E Version 2 Primer*. Anyone who uses TSO/E should read this book to learn more about TSO/E in relation to command usage and dataset management. The four sections in this document are "General TSO/E Functions," "Using Data Sets," "Running a Program," and "Changing the Way You Use TSO/E." This document supersedes the *OS/VS2 TSO Terminal User's Guide* (GC28-0645-4).

## USERS GROUP HIGHLIGHTS

### COMPUTER USERS GROUP

No Computer Users Group meeting was held in January, 1992. Beginning again in February, meetings will continue to be held on the first Tuesday of each month.

### MINUTES OF MACINTOSH USERS GROUP MEETING HELD JANUARY 8, 1992

Bob Kampwirth (Materials Science) opened the meeting at 11:04 a.m. Sherry Hubl, (Frame Technology Corp.), discussed FrameMaker 3.0, a full-featured word processing program with additional capabilities for document formatting similar to PageMaker or Quark XPress. She was also going to demonstrate the product but could not get it to work on the Apple Macintosh that was available, possibly due to lack of hard disk storage space or a system file with too many INITs and CDEVs. FrameMaker requires 5 to 8 megabytes of hard disk.

Sherry said that the idea of FrameMaker is to have one easy-to-use application that fully integrates word processing, page layout, graphics, tables, equation editing, and structured document tools. A second idea is to have it available for all the workstation-type computers (including those from Sun, Hewlett-Packard, Apollo, DECstation, IBM RISC System, 80386/80486 PC, Apple Macintosh, and NeXT). Special features of FrameMaker include (1) conditional text, (2) a "Replace" function that can replace words with graphics, (3) the ability to zoom from 25 percent to 400 percent, (4) a robust spell checker that can also spot too many spaces and incorrect use of capitals, (5) the ability to import from many documents and to crop and resize imported graphics, (6) the ability to export to Microsoft Word, (7) rotation of text in tables, (8) the ability to anchor graphics to text, and (9) provision for both landscape and portrait modes in the same document. FrameMaker is an open application so that third parties can add special features. By the end of 1992, FrameMaker will be rewritten so that the Standard Generalized Markup Language (SGML) will be available for moving documents between formats. FrameMaker 3.0 lists for \$795, but it is available from Frame Technology to national laboratories (including Argonne) for \$595.

A new version of Microsoft Word, Word 5.0, is now available from the University of Chicago Computing Center for \$85 a copy. It was reported that you can get a free upgrade directly from Microsoft if you purchased Word 4.0 after November 1, 1991.

The group discussed general loading and the use of System 7.0. Some people thought it is necessary to get a compact version of System 7.0 on an 800 kilobytes disk, at least for the Apple Macintosh Plus. Others thought it necessary to use System 6.0.7 or below to get an Apple Macintosh operating system on an 800 KB disk. The majority of people using System 7 have found it satisfactory; however, some people are experiencing problems so Ralph Leonard (Chemical Technology) agreed to collect information on the use of System 7.0. Please send him a QuickMail note if (1) you had trouble getting System 7 to work properly and found a trick that allowed you to get it working properly or (2) you are having problems with System 7.0. He will see that any System 7.0 questions or problems get forwarded to Eliot Axelrod (technical representative from Apple Computer) for answers.



A question was raised about a superdrive (1.4 megabyte microfloppy disk drive or FDHD drive) for the Macintosh Plus. Ralph Leonard (Chemical Technology) reported that the PLI TurboFloppy 1.4 (available from MacConnection for \$309) works quite well through the SCSI port of the Mac Plus. The only problem with this drive is that, although it formats, reads, and writes high density (1.4 MB) microfloppy disks, it does not even read 800 KB disks. The Apple Macintosh external 3.5" FDHD drive, which is available from the University of Chicago for \$305 and which will also read 400 and 800 KB disks, works only for those Apple Macintoshes that have a high density ROM, that is, only for those Apple Macintoshes that already have the superdrive. Thus, while the Apple Macintosh external 3.5" FDHD drive will work for the Macintosh Classic, FDHD SE, SE/30, IIsi, and IIfx, it will not work for the Apple Macintosh Plus.

In February, 1992, the meeting will feature the use of a HyperCard interface to do scripting in Spyglass. In March, 1992, the group will examine a variety of pointing devices for the Apple Macintosh (including mice and trackballs). In April, 1992, HiQ will be demonstrated. In May, A/UX 3.0, the Unix-

based operating system for the Macintosh will be demonstrated. In June, David Lifka (Computing and Telecommunications Division) will demonstrate X Windows (MacX) for the Apple Macintosh.

The Apple Macintosh Users Group normally meets on the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Media Services), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail at [Lee\\_Wagar@qmgate.anl.gov](mailto:Lee_Wagar@qmgate.anl.gov).

The meeting adjourned at 12:10 p.m.

Ralph Leonard, Macintosh Users Group Secretary





# WORKLOAD STATISTICS (NOVEMBER 27 THROUGH DECEMBER 19, 1991)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,175              | 1,175        | 387                 |
| Wylbur      | 1,545              | 1,542        | 280                 |
| MVS TSO     | 57                 | 57           | 28                  |
| CICS        | 2,213              | 2,217        | 154                 |
| MVS Batch   | 2,213              | 2,217        | 558                 |
| VAX/VMS     | 663                | 660          | 222                 |
| Cray        | 359                | 356          | 96                  |
| Achilles    | *                  | 148          | *                   |
| All Systems | 2,213              | 2,217        | 915                 |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |       |         |        | SESSION TIME (HRS) | CPU TIME (HRS) |
|--------------------|--------------------------------|-------|---------|--------|--------------------|----------------|
|                    | PRIME                          | NIGHT | WEEKEND | TOTAL  |                    |                |
| <b>INTERACTIVE</b> |                                |       |         |        |                    |                |
| CMS                | 7,590                          | 1,670 | 1,465   | 10,725 | 30,402.8           | 62.33          |
| Wylbur             | 4,388                          | 120   | 190     | 4,698  | 4,549.9            | 3.31           |
| MVS TSO            | 765                            | 1     | 5       | 771    | 840.6              | 2.79           |
| CICS               | *                              | *     | *       | *      | *                  | *              |
| VAX/VMS            | 5,514                          | 2,583 | 2,169   | 10,266 | 23,646.2           | 208.99         |
| Cray               | 372                            | 52    | 158     | 582    | 541.1              | 104.08         |
| <b>IBM BATCH</b>   |                                |       |         |        |                    |                |
| Class U            | 6,351                          | 1,214 | 896     | 8,461  | **                 | 14.52          |
| Class W            | 11,526                         | 2,811 | 513     | 14,850 | **                 | 71.09          |
| Class X            | 5                              | 579   | 28      | 612    | **                 | 16.87          |
| Class Y            | 0                              | 1     | 238     | 239    | **                 | 5.17           |
| Nonmain            | 11,380                         | 1,376 | 1,012   | 13,768 | **                 | 0.00           |
| Total              | 29,262                         | 5,981 | 2,687   | 37,930 | **                 | 107.65         |
| <b>CRAY BATCH</b>  |                                |       |         |        |                    |                |
| u                  | 372                            | 0     | 0       | 372    | **                 | 0.23           |
| w                  | 1,934                          | 52    | 152     | 2,138  | **                 | 8.16           |
| x                  | 1,209                          | 101   | 158     | 1,468  | **                 | 34.48          |
| y                  | 1,077                          | 69    | 102     | 1,248  | **                 | 40.53          |
| Total              | 4,592                          | 222   | 412     | 5,226  | **                 | 83.40          |
| <b>VMS BATCH</b>   |                                |       |         |        |                    |                |
| W BATCH            | 122                            | 213   | 87      | 422    | **                 | 15.59          |
| X BATCH            | 1                              | 5     | 2       | 8      | **                 | 137.10         |
| Y BATCH            | 0                              | 0     | 1       | 1      | **                 | 0.10           |
| Total              | 123                            | 218   | 90      | 431    | **                 | 152.79         |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               |            |
| Local                       | 40,683,232 |
| Remote                      | 37,799,114 |
| Fiche                       | 29,524,629 |
| Tape Mounts                 | 5,304      |
| Microfiche Developed        | 3,324      |
| Microfiche Frames Developed | 630,015    |

## GRAPHICS

|                   | # OF JOBS | # OF FRAMES |
|-------------------|-----------|-------------|
| CalComp Jobs      | 46        | *           |
| Matrix 35mm Color | 9         | 18          |
| Matrix-8 x 10     | 0         | 0           |
| Matrix-Negative   | 0         | 0           |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 24,885 |
| Round Tapes Saved           | 60     |
| Round Tapes Released        | 693    |
| Cartridges Saved            | 1,018  |
| Cartridges Released         | 1,069  |
| Datasets Exported to Tape   | 1,351  |
| Datasets Imported from Tape | 332    |

\* not available

\*\* not applicable

AVAILABILITY STATISTICS, BY MACHINE (NOVEMBER 27 THROUGH DECEMBER 19, 1991)

|                                           | Monthly<br>Totals | Hardware | Scheduled<br>Software | Other | Hardware | Unscheduled<br>Software | Other |
|-------------------------------------------|-------------------|----------|-----------------------|-------|----------|-------------------------|-------|
| <b>CMS</b>                                |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 4.00              | 3.00     | 1.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 4.61              | 3.66     | 0.95                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| <b>WYLBUR</b>                             |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 7.00              | 3.00     | 3.00                  | 0.00  | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 6.31              | 4.16     | 2.01                  | 0.00  | 0.00     | 0.13                    | 0.00  |
| MTF/Unscheduled                           | 521.68            |          |                       |       |          | 521.68                  | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       |          | 0.00                    |       |
| <b>MVS TSO</b>                            |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 6.00              | 3.00     | 3.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 6.35              | 4.16     | 2.18                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       | 0.00     | 0.00                    |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       |          | 0.00                    |       |
| <b>JES3</b>                               |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 7.00              | 3.00     | 3.00                  | 0.00  | 0.00     | 0.10                    | 0.00  |
| Hrs Unavailable                           | 5.80              | 3.91     | 1.46                  | 0.00  | 0.00     | 0.41                    | 0.00  |
| MTF/Unscheduled                           | 522.20            |          |                       |       |          | 522.20                  |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       |          | 0.00                    |       |
| <b>CICS</b>                               |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       |          | 0.00                    |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       |          | 0.00                    |       |
| <b>VAX/VMS (VAX 8700)</b>                 |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 2.00              | 0.00     | 2.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 01.35             | 0.00     | 1.35                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       | 0.00     |                         |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       |          | 0.00                    |       |
| <b>VAX/VMS (VAX 6410)</b>                 |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 1.00              | 0.00     | 1.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.48              | 0.00     | 0.48                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       |          | 0.00                    |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |       |          | 0.00                    |       |
| <b>CRAY</b>                               |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 05.00             | 3.00     | 1.00                  | 0.00  | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 10.05             | 09.06    | 0.71                  | 0.00  | 0.00     | 0.26                    | 0.00  |
| MTF/Unscheduled                           | 517.95            |          |                       |       | 000.00   | 517.95                  |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 1.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 0.26              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.26                    | 0.00  |
| MTF/Unscheduled                           | 191.73            |          |                       |       | 0.00     | 191.73                  |       |



**COMPUTING CENTER USE IN DOLLARS BY COST CENTER (NOVEMBER 27 THROUGH DECEMBER 19, 1991)**

| CC                                                    | CCNAME                            | IBM      | VAX      | CRAY      | NETWORK  | PERIPHERAL | CCTOTAL   |
|-------------------------------------------------------|-----------------------------------|----------|----------|-----------|----------|------------|-----------|
| <b>ADVANCED PHOTON SOURCE</b>                         |                                   |          |          |           |          |            |           |
| 131                                                   | ACCELERATOR SYS DIV               | \$62     | \$1      | \$0       | \$2      | \$136      | \$202     |
| 132                                                   | EXP FACIL DIV                     | \$54     | \$0      | \$0       | \$0      | \$118      | \$172     |
| 272                                                   | ADVANCED PHOTON SOURCE            | \$79     | \$51     | \$0       | \$32     | \$55       | \$217     |
| 341                                                   | APS ACCELERATOR PHYSICS           | \$194    | \$4,860  | \$0       | \$41     | \$90       | \$5,186   |
| 342                                                   | APS DIAGNOSTICS                   | \$2      | \$12     | \$0       | \$0      | \$2        | \$16      |
| 343                                                   | APS LINAC                         | \$0      | \$174    | \$0       | \$6      | \$0        | \$180     |
| 344                                                   | APS RF                            | \$2      | \$32     | \$0       | \$6      | \$0        | \$41      |
| 345                                                   | APS VACUUM/MECHANICAL ENG.        | \$27     | \$335    | \$0       | \$85     | \$226      | \$653     |
| 347                                                   | APS CONTROLS                      | \$40     | \$42     | \$0       | \$0      | \$195      | \$277     |
| 348                                                   | APS MAGNETS                       | \$50     | \$58     | \$0       | \$206    | \$127      | \$441     |
| 349                                                   | APS POWER SUPPLIES                | \$22     | \$0      | \$0       | \$0      | \$0        | \$22      |
| 350                                                   | APS DIVISION MANAGEMENT           | \$0      | \$0      | \$0       | \$0      | \$0        | \$0       |
| 351                                                   | APS INSERTION DEVICES             | \$37     | \$1,113  | \$0       | \$42     | \$455      | \$1,647   |
| 352                                                   | APS ENGINEERED SYSTEMS            | \$26     | \$1,204  | \$0       | \$39     | \$318      | \$1,587   |
| 353                                                   | APS BEAM LINE INSTRUMENTATION     | \$30     | \$2,522  | \$0       | \$147    | \$1,300    | \$3,999   |
| 360                                                   | APS CONVENTIONAL FACILITIES       | \$8      | \$0      | \$0       | \$0      | \$0        | \$8       |
| 361                                                   | APS PROJECT DIRECTION             | \$41     | \$10     | \$0       | \$0      | \$17       | \$68      |
| 362                                                   | APS MANAGEMENT GENERAL            | \$15     | \$0      | \$0       | \$0      | \$17       | \$33      |
| -----                                                 | SUBTOTAL                          | \$800    | \$10,416 | \$0       | \$923    | \$3,058    | \$15,196  |
| <b>ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH</b> |                                   |          |          |           |          |            |           |
| 110                                                   | BIO & MED RES DIV                 | \$675    | \$146    | \$70      | \$761    | \$679      | \$2,332   |
| 125                                                   | TECHNOLOGY TRANSFER CENTER        | \$55     | \$0      | \$0       | \$0      | \$124      | \$179     |
| 145                                                   | ENVIRONMENTAL RESEARCH DIV        | \$1,836  | \$346    | \$80      | \$1,387  | \$1,149    | \$4,799   |
| 153                                                   | ENERGY SYSTEMS DIVISION           | \$1,312  | \$2,535  | \$656     | \$591    | \$596      | \$5,691   |
| 165                                                   | ENV ASSESS & INFO SCI DIV         | \$2,044  | \$974    | \$269     | \$267    | \$3,239    | \$6,792   |
| 246                                                   | ES-NAT'L ENERGY SOFTWARE CTR      | \$44     | \$0      | \$0       | \$551    | \$167      | \$762     |
| 274                                                   | ENER/ENV/BIO RES PROG ADM         | \$97     | \$0      | \$0       | \$1      | \$175      | \$273     |
| -----                                                 | SUBTOTAL                          | \$6,064  | \$4,002  | \$1,075   | \$3,559  | \$6,129    | \$20,828  |
| <b>ENGINEERING RESEARCH</b>                           |                                   |          |          |           |          |            |           |
| 102                                                   | EBR-II PROJECT-ANL WEST           | \$1,032  | \$1      | \$807     | \$2,098  | \$160      | \$4,099   |
| 104                                                   | FUELS AND PROCESSES DIVISION      | \$621    | \$23     | \$10      | \$232    | \$110      | \$1,016   |
| 107                                                   | CHEMICAL TECHNOLOGY DIVISION      | \$402    | \$184    | \$0       | \$493    | \$333      | \$1,411   |
| 112                                                   | REACTOR ENGINEERING DIVISION      | \$4,698  | \$222    | \$515     | \$1,983  | \$1,921    | \$9,338   |
| 114                                                   | MATLS & COMP TECH DIV             | \$2,600  | \$751    | \$395     | \$869    | \$565      | \$5,179   |
| 115                                                   | ENGINEERING PHYSICS DIVISION      | \$1,964  | \$644    | \$2,443   | \$1,250  | \$775      | \$7,076   |
| 116                                                   | REACTOR ANALYSIS DIVISION         | \$23,863 | \$7,263  | \$28,159  | \$9,499  | \$8,121    | \$76,904  |
| 117                                                   | APPLIED PHYSICS-ANL WEST          | \$722    | \$154    | \$8,040   | \$185    | \$266      | \$9,368   |
| 118                                                   | FUEL CYCLE DIVISION               | \$1,320  | \$2,168  | \$30      | \$190    | \$432      | \$4,114   |
| 171                                                   | ENG RES PROG DIR                  | \$5      | \$0      | \$0       | \$0      | \$105      | \$109     |
| 197                                                   | SPECIAL PROJECTS OFFICE           | \$185    | \$0      | \$0       | \$7      | \$188      | \$381     |
| 211                                                   | ENGR PHYS DIV - DESIGN ENGR       | \$19     | \$2      | \$0       | \$5      | \$105      | \$132     |
| 269                                                   | ANALYTICAL CHEMISTRY LABORATORY   | \$66     | \$14     | \$0       | \$8      | \$106      | \$193     |
| 271                                                   | ENG RES PROG ADMIN                | \$135    | \$0      | \$0       | \$2      | \$251      | \$389     |
| -----                                                 | SUBTOTAL                          | \$37,632 | \$11,427 | \$40,372  | \$16,843 | \$13,437   | \$119,710 |
| <b>PHYSICAL RESEARCH</b>                              |                                   |          |          |           |          |            |           |
| 105                                                   | MATERIALS SCIENCE DIVISION        | \$390    | \$2,330  | \$274     | \$876    | \$-1,298   | \$2,571   |
| 109                                                   | PHYSICS DIV                       | \$1,390  | \$158    | \$18      | \$1,079  | \$730      | \$3,375   |
| 120                                                   | CHEMISTRY DIV                     | \$1,045  | \$10,180 | \$916     | \$282    | \$383      | \$12,807  |
| 136                                                   | INT PULSE NEUT SOURCE PROG        | \$148    | \$40     | \$51      | \$306    | \$336      | \$881     |
| 137                                                   | HIGH ENERGY PHYSICS DIV           | \$300    | \$1,028  | \$2,655   | \$867    | \$573      | \$5,424   |
| 139                                                   | DIV OF EDUCATIONAL PROGRAMS       | \$141    | \$8      | \$0       | \$105    | \$152      | \$406     |
| 145                                                   | MATHAMATICS & COMPUTER SCI DIV    | \$78     | \$35     | \$156     | \$29     | \$4,959    | \$5,257   |
| 146                                                   | CTD DIV - SCI APPL & RES          | \$44     | \$653    | \$-19,955 | \$248    | \$1,118    | \$-17,892 |
| 273                                                   | PHYSICAL RESEARCH PROGRAM ADMIN   | \$50     | \$10     | \$0       | \$25     | \$112      | \$197     |
| -----                                                 | SUBTOTAL                          | \$3,585  | \$14,442 | \$-15,884 | \$3,816  | \$7,066    | \$13,025  |
| <b>EXTERNAL</b>                                       |                                   |          |          |           |          |            |           |
| 751                                                   | FERMI NATIONAL LABORATORY         | \$472    | \$0      | \$0       | \$770    | \$400      | \$1,642   |
| 752                                                   | NAVY                              | \$8,171  | \$0      | \$0       | \$1,220  | \$3,311    | \$12,701  |
| 753                                                   | MORGANTOWN ENERGY TECH CENTER     | \$5      | \$0      | \$0       | \$0      | \$0        | \$5       |
| 754                                                   | DEPARTMENT OF ENERGY AT ANL       | \$2      | \$7      | \$0       | \$21     | \$0        | \$30      |
| 760                                                   | ABBOTT LABORATORIES               | \$2      | \$0      | \$38      | \$0      | \$0        | \$40      |
| 763                                                   | GENERAL ELECTRIC COMPANY          | \$0      | \$0      | \$0       | \$0      | \$0        | \$0       |
| 766                                                   | BECHTEL NATIONAL, INC.            | \$0      | \$3      | \$8       | \$0      | \$1        | \$11      |
| 777                                                   | UNIVERSITY OF CHICAGO AT ANL      | \$11     | \$0      | \$0       | \$150    | \$0        | \$161     |
| 778                                                   | ARGONNE CREDIT UNION              | \$5      | \$0      | \$0       | \$0      | \$0        | \$5       |
| 779                                                   | UNIVERSITY OF ILLINOIS AT CHICAGO | \$5      | \$0      | \$0       | \$0      | \$0        | \$5       |
| 780                                                   | NEW BRUNSWICK LABORATORY          | \$9      | \$0      | \$0       | \$0      | \$0        | \$9       |
| 781                                                   | STATE OF ILL. DEPT. MENTAL HEALTH | \$0      | \$0      | \$0       | \$0      | \$6        | \$7       |
| 782                                                   | PACKER ENGINEERING                | \$2      | \$8      | \$0       | \$1      | \$0        | \$11      |
| 783                                                   | WEST VALLEY NUCLEAR SERVICES CO   | \$106    | \$0      | \$0       | \$2      | \$39       | \$147     |
| 784                                                   | SSC LABORATORY                    | \$0      | \$0      | \$129     | \$0      | \$0        | \$132     |
| 787                                                   | ILLINOIS INSTITUTE OF TECHNOLOGY  | \$0      | \$15     | \$0       | \$5      | \$0        | \$21      |
| 790                                                   | GRUMANN AEROSPACE                 | \$0      | \$0      | \$0       | \$0      | \$10       | \$10      |
| -----                                                 | SUBTOTAL                          | \$8,789  | \$36     | \$174     | \$2,169  | \$3,767    | \$14,936  |

| CC    | CCNAME                          | IBM       | VAX        | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|-------|---------------------------------|-----------|------------|----------|----------|------------|-----------|
|       |                                 |           | OPERATIONS |          |          |            |           |
| 143   | SUPP SERV DIV - ELEC DEPT       | \$134     | \$0        | \$0      | \$272    | \$294      | \$700     |
| 148   | HUMAN RESOURCES-MEDICAL DEPT    | \$1,472   | \$0        | \$0      | \$134    | \$282      | \$1,888   |
| 150   | SUPPORT SERV DIV - SPEC MATLS   | \$144     | \$0        | \$0      | \$32     | \$141      | \$316     |
| 161   | IPD-TECH INFO SERV              | \$239     | \$14,680   | \$0      | \$2,154  | \$548      | \$17,622  |
| 201   | OFFICE OF THE DIRECTOR          | \$335     | \$0        | \$0      | \$159    | \$139      | \$632     |
| 202   | OFC OF CHIEF OPER OFCR          | \$14      | \$0        | \$0      | \$99     | \$101      | \$214     |
| 210   | SUPP SERV DIV - CENT SHOPS      | \$337     | \$0        | \$0      | \$71     | \$485      | \$893     |
| 216   | SUPPORT SERVICES DIVISION       | \$61      | \$0        | \$0      | \$36     | \$108      | \$205     |
| 222   | PLANT FAC & SERV-LODGING FAC    | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 232   | SUPPORT SERV DIV - SECURITY     | \$235     | \$0        | \$0      | \$3      | \$208      | \$446     |
| 234   | ESH DIV-HEALTH PHY              | \$236     | \$197      | \$0      | \$273    | \$215      | \$921     |
| 235   | ESH DIV                         | \$780     | \$20       | \$0      | \$163    | \$371      | \$1,334   |
| 236   | ESH DIV-FIRE DEPT               | \$5       | \$0        | \$0      | \$0      | \$100      | \$106     |
| 245   | COMPUTING AND TELECOM DIV       | \$18,236  | \$0        | \$0      | \$3,847  | \$2,636    | \$24,719  |
| 247   | COMP & TEL DIV - COM SERV       | \$2,116   | \$0        | \$0      | \$331    | \$993      | \$3,440   |
| 260   | IPD-MEDIA SERV DEPT             | \$118     | \$145      | \$0      | \$6      | \$214      | \$484     |
| 265   | IPD-TECH COM SERV               | \$5       | \$0        | \$0      | \$1      | \$0        | \$7       |
| 275   | OFFICE OF PUBLIC AFFAIRS        | \$389     | \$0        | \$0      | \$17     | \$136      | \$542     |
| 276   | OFC PUB AF - MOTN PIC UNIT      | \$34      | \$0        | \$0      | \$0      | \$12       | \$97      |
| 288   | INF & PUBL DIV                  | \$105     | \$55       | \$0      | \$14     | \$122      | \$297     |
| 296   | TELECOM COST/RECOVERY           | \$0       | \$0        | \$0      | \$65     | \$0        | \$65      |
| 315   | SUPP SERV DIV-MATLS & SERV      | \$2,219   | \$0        | \$0      | \$1,003  | \$472      | \$3,694   |
| 316   | PLANT FAC & SERV-VEH MAINT      | \$0       | \$0        | \$0      | \$0      | \$152      | \$152     |
| 317   | PLANT FAC & SERV-DRIV&RIG SERV  | \$26      | \$0        | \$0      | \$0      | \$104      | \$130     |
| 319   | SUPP SERV DIV-TRAVEL OFC        | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 322   | SUPP SERV DIV-PROCUREMENT       | \$31      | \$0        | \$0      | \$0      | \$102      | \$133     |
| 333   | ENVIR SAFE HEALTH & QA OVERSIGH | \$445     | \$2        | \$0      | \$60     | \$703      | \$1,210   |
| 336   | SUPP SERV DIV - INSPECTION      | \$12      | \$0        | \$0      | \$0      | \$1        | \$13      |
| 400   | OFC OF CHIEF FIN OFFICER        | \$42,048  | \$0        | \$0      | \$2,902  | \$9,715    | \$54,665  |
| 401   | ACCOUNTING                      | \$0       | \$0        | \$0      | \$27     | \$100      | \$127     |
| 403   | BUDGET OFFICE                   | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 410   | HUMAN RESOURCES DEPARTMENT      | \$17,933  | \$0        | \$0      | \$1,181  | \$2,066    | \$21,180  |
| 412   | AFFIRM ACTION PROGRAM           | \$46      | \$0        | \$0      | \$45     | \$100      | \$191     |
| 501   | PLANT FAC & SERV-BLDG MAINT     | \$597     | \$0        | \$0      | \$72     | \$239      | \$908     |
| 502   | PLANT FAC & SERV-INSTALLATIONS  | \$18      | \$0        | \$0      | \$2      | \$100      | \$120     |
| 503   | PLANT FAC & SERV-GROUNDS        | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 504   | PLANT FAC & SERV-CUSTODIAL      | \$2       | \$0        | \$0      | \$0      | \$100      | \$102     |
| 505   | PLANT FAC & SERV-WASTE MGMT OP  | \$46      | \$0        | \$0      | \$67     | \$100      | \$212     |
| 506   | PLANT FAC & SERV-PLANT MGR OFC  | \$503     | \$0        | \$0      | \$16     | \$297      | \$817     |
| 509   | PLANT FAC & SERV-OPERATION DIN  | \$0       | \$0        | \$0      | \$1      | \$0        | \$1       |
| 510   | PLANT FAC & SERV-UTILITY SYST   | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 512   | PLANT FAC & SERV-FAC PLNG/ENG   | \$269     | \$9        | \$0      | \$12     | \$121      | \$412     |
| 530   | SITE MGRS OFC-ANL WEST          | \$115     | \$0        | \$0      | \$14     | \$101      | \$229     |
| 531   | HUMAN RESOURCES-AW              | \$81      | \$0        | \$0      | \$24     | \$100      | \$205     |
| 532   | SPECIAL MATLS-ANL WEST          | \$585     | \$0        | \$0      | \$142    | \$260      | \$986     |
| 533   | ACCOUNTING-ANL WEST             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 534   | PURCHASING-ANL WEST             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 535   | SECURITY - ANL WEST             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 536   | ENVIRONMENT, SAFETY & HEALTH-AW | \$6       | \$0        | \$0      | \$0      | \$100      | \$106     |
| 537   | INFORMATION SERVICE-ANL WEST    | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 538   | SUPPLY-AW                       | \$53      | \$0        | \$0      | \$9      | \$100      | \$162     |
| 550   | COMPUTER APPL & SERV - ANL-W    | \$73      | \$0        | \$0      | \$5      | \$101      | \$179     |
| 554   | MACHINE SHOP-ANL WEST           | \$15      | \$0        | \$0      | \$2      | \$100      | \$117     |
| 556   | SITE ENGRG-ANL WEST             | \$65      | \$0        | \$0      | \$11     | \$100      | \$176     |
| 557   | PLANT SERVICES-AW-SERVICE REQ   | \$56      | \$1        | \$0      | \$5      | \$100      | \$162     |
| 558   | PLANT SERVICES-AW-FUNCTION      | \$2       | \$0        | \$0      | \$0      | \$0        | \$2       |
| 561   | OFC OF QUALITY ASSURANCE - AW   | \$0       | \$0        | \$0      | \$0      | \$101      | \$103     |
| 570   |                                 | \$0       | \$0        | \$0      | \$0      | \$2        | \$2       |
| 710   | PLANT WORK PROJECTS             | \$0       | \$0        | \$0      | \$0      | \$-2       | \$-2      |
| ----- | SUBTOTAL                        | \$90,242  | \$15,108   | \$0      | \$13,280 | \$23,641   | \$142,272 |
| TOTAL |                                 | \$147,112 | \$55,430   | \$25,738 | \$40,589 | \$57,099   | \$325,967 |



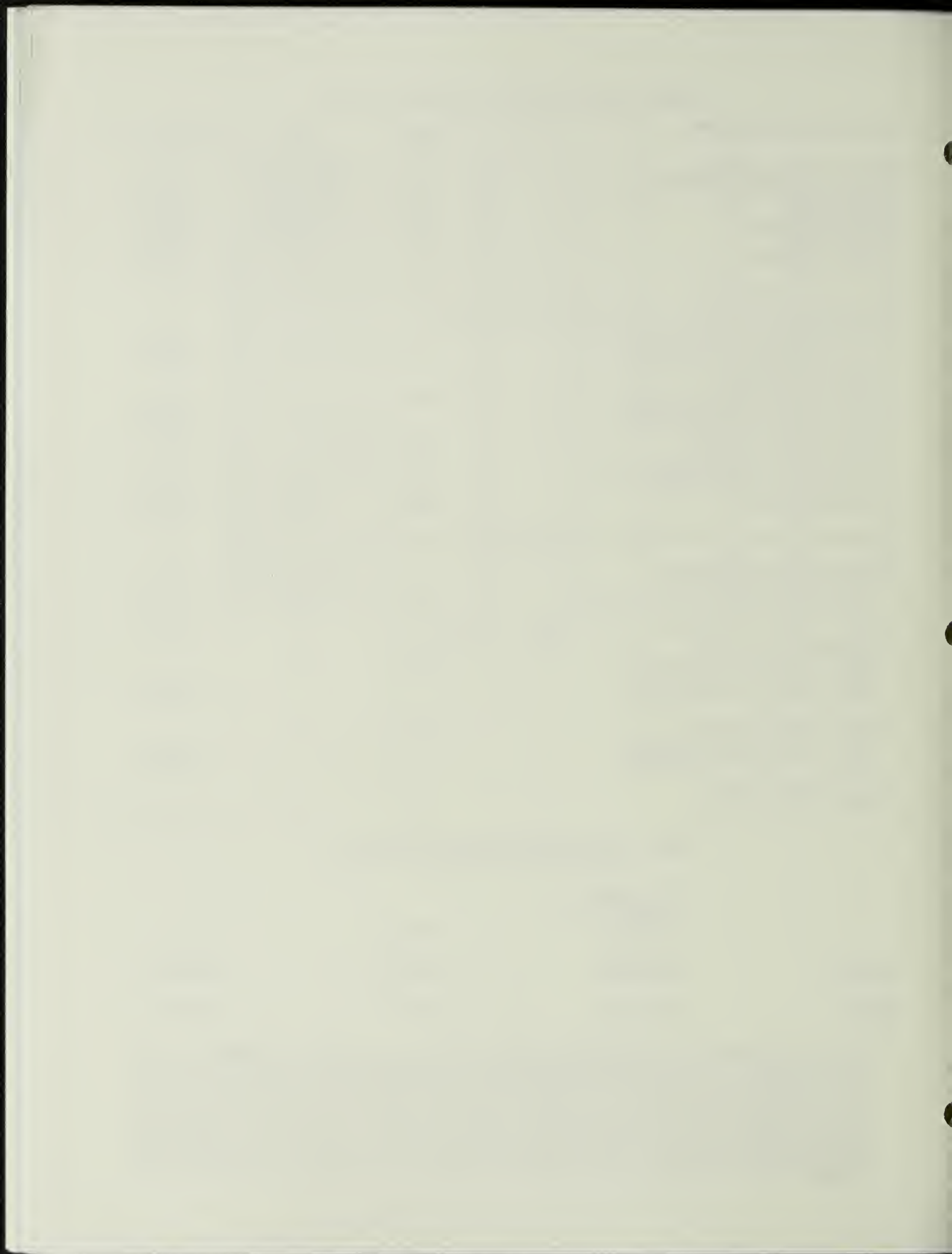
## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance                                                     | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|--------------------------------------------------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center                                                      | 2-5421                                | 8-252-5421        | 252-5421                   |
| Current System Status Recorded Message                                         | 2-5466                                | 8-252-5466        | 252-5466                   |
| User Consultant                                                                | 2-5405                                | 8-252-5405        | 252-5405                   |
| Documentation                                                                  | 2-5405                                | 8-252-5405        | 252-5405                   |
| Computer Operations                                                            | 2-5421                                | 8-252-5421        | 252-5421                   |
| VM/SP Operator                                                                 | 2-8442                                | 8-252-8442        | 252-8442                   |
| RADS Maintenance                                                               | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service                                                      | 1-800-332-1478 (only within Illinois) |                   |                            |
| <b>CICS, CMS, Wylbur, and TSO Interactive Computing Services</b>               |                                       |                   |                            |
| IBM 3270 Protocol Converter                                                    |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-3270                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-3270                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-3219                   |
| X.25 Terminal Multiplexor                                                      |                                       |                   |                            |
| 300 to 19.2K Bits Per Second(Onsite)                                           | 2-2525                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-2525                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-2519                   |
| IBM 3174 Cluster Controller                                                    | 2-3174                                | n.a.              | n.a.                       |
| 1,200 Bits Per Second Full-Duplex<br>(Bell 212 and Hayes Compatible Modems)    | 2-2212                                | n.a.              | 252-2212                   |
| 1,200 Bits Per Second Full-Duplex<br>(Vadic 3400 Compatible Modems)            | 2-7612                                | n.a.              | 252-7612                   |
| 300 Bits Per Second                                                            | 2-7603*                               | n.a.              | 252-7603*                  |
| * When using a 300 bits per second modem, you must use a capital "P" to logon. |                                       |                   |                            |
| <b>Batch Remote Job Entry Service</b>                                          |                                       |                   |                            |
| 2,000 or 2,400 Bits Per Second<br>(Bell 201A and 201C Compatible Modems)       | 2-7989                                | n.a.              | 252-7989                   |
| 4,800 Bits Per Second<br>(Bell 208B Compatible Modems)                         | 2-7573                                | n.a.              | 252-7573                   |
| <b>Central DEC VAX Cluster</b>                                                 |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-8700                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-8700                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-8745                   |
| <b>Argonne TCP/IP Network</b>                                                  |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-5588                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-5588                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-4726                   |
| <b>Argonne MFEnet Dial-Up</b>                                                  |                                       |                   |                            |
| 300 to 19.2K Bits Per Second                                                   | 2-7920                                | n.a.              | 252-7920                   |

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

|                       | MVS JES3<br>Batch, UNICOS<br>Wylbur,<br>and TSO | VM/XA                        | VMS                          |
|-----------------------|-------------------------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00                    | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                                     | 00:00-24:00                  | 00:00-24:00                  |

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



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### COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

#### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

| Course Name | Course Title                                |
|-------------|---------------------------------------------|
| SLFTEACH    | Introduction and Advanced Concepts of Xedit |

#### DEC CBT Courses on the Central VAX 6410 (node ANLCV1)

(Enter RUN "course name" at the DCL level.)

|         |                                               |
|---------|-----------------------------------------------|
| VMSCAI  | Introduction to VAX/VMS                       |
| LSECAI  | Introduction to the Language Sensitive Editor |
| EVECAI  | Introduction to the Extensible VAX Editor     |
| DTRCAI  | Datatrieve for Users                          |
| DTRPCAI | Datatrieve for Programmers                    |

## Computing and Telecommunications Division

*Table 1: Commands To Obtain Color Transparencies of PostScript Files*

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cray                            | <p>You may use the lpr or the hardcopy commands to plot PostScript files from the Cray. To use lpr in the Bourne shell or C shell, enter:</p> <pre>lpr -Panlclrtl fn</pre> <p>To use the hardcopy command in the Bourne shell, enter:</p> <pre>PLOTDEST=ANLCV1.ANLCRLT1 export PLOTDEST hardcopy fn PS</pre> <p>(Note: after these commands are entered, all graphics output created with the hardcopy command will be plotted at the destination specified by PLOTDEST until PLOTDEST is redefined.)</p> <p>To use the hardcopy command in the C shell, enter:</p> <pre>setenv PLOTDEST ANLCV1.ANLCRLT1 hardcopy fn PS</pre> <p>(Note: after this command is entered, all graphics output created with the hardcopy command will be plotted at the destination specified by PLOTDEST until PLOTDEST is redefined.)</p> |
| Sun                             | <pre>lpr -Panlclrtl -CBnnnnn file</pre> <p>Printer anlclrtl must have been defined in your system's /etc/printcap file. (See "Accessing Central Printers via lpr" in the December 1991 Newsletter.) Your badge, Bnnnnn, is necessary for proper output distribution.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| CTD VAX cluster                 | <pre>PRINT/QUEUE=ANLCRLT1 filespec</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| DECnet node                     | <pre>COPY filespec ANLCV1"username pass"::filespec1 PRINT/REMOTE/QUEUE=ANLCRLT1 ANLCV1::filespec1 DELETE ANLCV1"username pass"::filespec1</pre> <p>DECnet copy requires that you have an account on the CTD VAX cluster. You may omit the CTD VAX cluster username and password if you have arranged for a DECnet proxy from your remote DECnet node. Alternatively, if your DECnet node is also running TGV Multinet, your system manager may arrange with Barry Miller in CTD (extension 2-6860) to define Multinet print queues for the Seiko printer.</p>                                                                                                                                                                                                                                                           |
| CMS                             | <pre>LISTPS fn ANLCV1 ANLCRLT1</pre> <p>The filetype of CMS PostScript files to be plotted with the CMS LISTPS EXEC must be LISTPS.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MVS                             | <pre>//jobcard //PSOUTPUT OUTPUT DEST=ANLCV1.ANLCRLT1,UCS=PS // EXEC SDSKLIST,INDSN='dsn',SYSOUT=A //SDSKLIST.SYSUT2 DD SYSOUT=A,OUTPUT=*.PSOUTPUT</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| IBM PC with Pathworks PC        | <pre>USE LPT1: \\ANLCV1\ANLCRLT1\username * NET PRINT filename.typ LPT1:</pre> <p>Username is your CTD VAX cluster username. The system will prompt you for your VAX cluster password. (See "How To Use VAX Cluster Printers from Personal Computers" in the September 1991 Newsletter.)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| IBM PC with NCSA Telnet and lpr | <pre>SET PRINTER=anlclrtl SET SERVER=anlcvl.ctd.anl.gov SET CONFIGTEL=[d:]\path\config.tel LPR -CBnnnnn fn</pre> <p>You should set these environment variables in your AUTOEXEC.BAT file. CONFIGTEL specifies the path to your NCSA Telnet config.tel file. Your badge, Bnnnnn, is required for proper output distribution.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Macintosh                       | <p>Select LaserWriter in the Chooser<br/>         Select Public AlisaTalk from AppleTalk Zones<br/>         Select ANLCRLT1<br/>         Select Print from your application</p> <p>Before printing, enter your user name in the Chooser (System 6) or your owner name in the Sharing Setup entry in the Control Panel (System 7). For proper output distribution, your user name or your owner name must include your ANL badge number, in the form (Bnnnnn).</p>                                                                                                                                                                                                                                                                                                                                                       |

## Computing and Telecommunications Division

*Table 2: Commands To Obtain Color Transparencies of Graphics Metafiles*

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cray            | <p>To use the hardcopy command in the Bourne shell, enter:</p> <pre>PLOTDEST=ANLCV1.ANLCLRT1 export PLOTDEST hardcopy fn PS color</pre> <p>(Note: after these commands are entered, all graphics output created with the hardcopy command will be plotted at the destination specified by PLOTDEST until PLOTDEST is redefined.)</p> <p>To use the hardcopy command in the C shell, enter:</p> <pre>setenv PLOTDEST ANLCV1.ANLCLRT1 hardcopy fn PS color</pre> <p>(Note: after these commands are entered, all graphics output created with the hardcopy command will be plotted at the destination specified by PLOTDEST until PLOTDEST is redefined.)</p>                                                                                                                                                       |
| Sun             | not available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| CTD VAX cluster | <pre>HARDCOPY filespec PS.ANLCV1::ANLCLRT1</pre> <p>(specify device option number 2)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DECnet node     | <p>If your DECnet node is running VAX NJE, enter:</p> <pre>HARDCOPY filespec PS.ANLCV1::ANLCLRT1</pre> <p>Otherwise, you must first copy the file to the central VAX cluster. Enter:</p> <pre>COPY filespec ANLCV1"username pass"::filespec1 SET HOST ANLCV1 HARDCOPY filespec PS.ANLCV1::ANLCLRT1</pre> <p>(specify device option number 2)</p> <pre>DELETE ANLCV1"username pass"::filespec1</pre> <p>DECnet copy requires that you have an account on the CTD VAX cluster. You may omit the CTD VAX cluster username and password if you have arranged for a DECnet proxy from your remote DECnet node. Alternatively, if your DECnet node is also running TGV Multinet, your system manager may arrange with Barry Miller in CTD (extension 2-6860) to define Multinet print queues for the Seiko printer.</p> |
| CMS             | <p>To direct your PostScript output to the Seiko from CMS, enter:</p> <pre>SETPS ANLCV1 ANLCLRT1 HARDCOPY fn ft PS</pre> <p>(specify device option number 2)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| MVS             | <pre>//jobcard // EXEC PPS,DEST='ANLCV1.ANLCLRT1', // INDSN='dsn',OPTION=2</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| IBM PC          | not available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Macintosh       | not available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |







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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 23

NUMBER 3

MARCH 1992

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DEPOSITORY

APR 20 1992

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AT URBANA-CHAMPAIGN



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# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

|                                             |                          | Room | Phone  | Electronic Mail Address        |
|---------------------------------------------|--------------------------|------|--------|--------------------------------|
| Division Director                           | Mike Boxberger (Acting)  | A251 | 2-7155 | B34540 AT ANLVM                |
| Computer Protection Program Manager         | Jean Troyer              | A237 | 2-7440 | B18216 AT ANLVM                |
| Computing and Telecommunications Operations | Larry Amiot              | B243 | 2-5432 | B10523 AT ANLVM                |
| Computer Network                            | Bob McMahon              | B239 | 2-7270 | B17385 AT ANLVM                |
| Data Communications                         | Linda Winkler            | B251 | 2-7236 | B32357 AT ANLVM                |
| Service Engineering                         | Paul Phillips            | D118 | 2-4343 | B36679 AT ANLVM                |
| Network and Computer Operations             | Gary Schlesselman        | A113 | 2-5437 | B09819 AT ANLVM                |
| Day and Weekend Operation                   | Bob Bilshausen           | A134 | 2-5421 |                                |
| Document Distribution Counter               |                          | A134 |        |                                |
| Evening and Overnight Operation             | Mike Monczynski          | A134 | 2-5421 |                                |
| Tape Librarian                              | Sandra Vasko             | A134 | 2-7681 | B18669 AT ANLVM                |
| Trouble Reporting                           |                          | A134 | 2-5421 | NOC AT ANL.GOV                 |
| Systems Programming                         | John Volmer (Acting)     | B211 | 2-5449 | B32831 AT ACHILLES.CTD.ANL.GOV |
| Telephone Services                          | Allen Winter             | B247 | 2-2764 | B07059 AT ANLVM                |
| User Services                               | Fred Moszur              | A121 | 2-7419 | B27564 AT ANLVM                |
| Computer Use Authorizations                 | Fran Carnaghi            | A147 | 2-5425 | B27596 AT ANLVM                |
| Consultants                                 |                          | A139 | 2-5405 | CONSULT AT ANLVM               |
| Documentation Advice                        |                          | A139 | 2-5405 | CONSULT AT ANLVM               |
| Education and Assistance                    | Pete Bertoncini (Acting) | E101 | 2-4827 | B15013 AT ANLVM                |
| Management Information Systems              | Diane O'Brien            | B151 | 2-7167 | B26424 AT ANLVM                |
| Financial Systems                           | Nick Moore               | D239 | 2-8075 | B31048 AT ANLVM                |
| Human Resource Systems                      | Bob Hischier             | B147 | 2-7272 | B22639 AT ANLVM                |
| Information and Production Services         | Miriam Bretscher         | B139 | 2-7252 | B26187 AT ANLVM                |
| Materials and Plant Systems                 | Rich Slade               | B159 | 2-7329 | B32848 AT ANLVM                |
| Planning, Finance, and Administration       | Mike Boxberger           | A245 | 2-5638 | B34540 AT ANLVM                |
| Scientific Applications and Research        | Charles Mueller          | A231 | 2-7153 | B11284 AT ANLVM                |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 4/490, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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## COMPUTING COMMENTS

### LABORATORY AND DOE FY1992 ADMINISTRATIVE CHARGES FOR OUTSIDE USERS REVISED

For FY1992, outside computer users who are funded by DOE but not by ANL will incur Laboratory indirect charges that bring their total computing costs to 126 percent of their computing bill.

Outside computer users who are funded neither by DOE nor by ANL will incur additional costs (including depreciation and DOE administrative costs) that bring their total computing costs to approximately 170 percent of their computing bill.

### IBM DISK REPLACEMENT PLANNED

In response to January's IBM 3380 disk failures (which resulted in numerous service disruptions), the Computing and Telecommunications Division (CTD) is replacing that equipment. During February 1992, Argonne purchased 24 double capacity and 8 single capacity Amdahl 6380 disk drives to replace the failing IBM disk units. CTD will install these disks, which will replace all of the existing IBM disk units, with minimal interruption over the next six weeks. Argonne already uses several Amdahl disk units, which currently represent about half of the available MVS and VM disk storage capacity.

Amdahl disk drives have two advantages over the IBM disk equipment they are replacing: (1) They are sealed units requiring no external ventilation. External contamination is a possible culprit in the failure of the IBM disk equipment. (2) Argonne's past experience with Amdahl disk drives shows that they warn of failures. This warning gives the opportunity to schedule non-disruptive replacement of the disk unit.

Because Argonne has acquired several double capacity disk units, CTD will merge many disk volumes that now reside on single capacity units. CTD will use the following consolidation method:

```
PER701 + PER713 => PER701
PER702 => PER702
PER703 + PER707 => PER703
PER704 + PER708 => PER704
PER705 + PER709 => PER705
PER706 => PER706
PER710 => PER710
PER711 => PER711
PER712 => PER712
```

Note that volumes PER710, PER711, and PER712 are already on double capacity disks. Because IBM places two logical volumes on each physical volume, some users may have previously placed data only on odd or only on even numbered PER70n volumes. The above consolidation method preserves the separation of data that users may have performed. The consolidation of the PER volumes will take place during the first week in March 1992.

Additionally, we will consolidate many DAT8nn volumes. We will use the following consolidation method for the DAT8nn volumes:

```
DAT801 + DAT802 + DAT803 => DAT821
DAT804 + DAT805 => DAT822
DAT806 + DAT807 => DAT823
DAT808 + DAT809 => DAT824
DAT810 + DAT811 => DAT825
```

The DAT8nn consolidation will take place throughout the months of March and April 1992. Users with questions or concerns should contact John Volmer at electronic mail address [b32831@achilles.ctd.anl.gov](mailto:b32831@achilles.ctd.anl.gov) or at (708) 252-5449.

### NAGWARE FORTRAN 90 AVAILABLE FOR 60-DAY TRIAL

In response to the large enrollment in the Fortran 90 Workshop co-sponsored by CTD and the Numerical Algorithms Group, Inc., (NAG) in December 1991, CTD has acquired the NAGWare Fortran 90 Compiler for a 60-day trial period beginning February 1, 1992, and ending March 31, 1992. CTD encourages Argonne Fortran users to take this opportunity to explore the new Fortran standard by using the first commercially available Fortran 90 compiling system. Attendees of the Fortran 90 Workshop cited several new features that will be particularly useful for developing and maintaining large codes: array assignment, modules, portable



data-type representations, and improved control structures.

The NAGWare Fortran 90 Compiler is currently installed on the SUN Server workstation `achilles.ctd.anl.gov` in the `/usr/lang` directory.

Interested users who do not have an account on `achilles` should contact Account Services at extension 2-5425. Direct questions and comments related to the NAGWare Fortran 90 compiler to Steve Karlovsky at extension 2-7205 or Larry Rudinski at extension 2-7219.

#### **COMPUTING CLASS SCHEDULED FOR MARCH 1992**

During March 1992, CTD will offer one class. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Introduction to Unix* (three 3-hour lectures with three 1-hour labs) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will entail the use of Unix from ASCII terminals to reinforce the lecture content. There is a \$50 charge for this class.

## **COMPUTER PROTECTION**

### **DOE OBTAINS VIRUS DETECTION AND ERADICATION PROGRAMS FOR LAB-WIDE USE**

To combat the threat of viruses that can infect MS-DOS computers, the Department of Energy (DOE) headquarters has acquired an agency-wide license for an integrated anti-viral software product, Data Physician Plus. The Data Physician Plus license allows us to make a copy available for every ANL or DOE owned computer running DOS 2.0 or higher software. The acquisition includes one year's maintenance. CTD will distribute updates as we receive them.

CTD is distributing Data Physician Plus to Argonne's IBM-PC anti-virus team members, who in turn will distribute it to their users. This 3 1/2-inch diskette, "Data Physician Plus for IBM PC Version 3.0C," is also available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). You may also get a copy of this program from the DOS Public Volume. For further information, see "Public DOS File System Available" in this *Newsletter*.

CTD recommends that you use the following two steps to check for viruses:

First, run the VirHUNT program that comes with Data Physician Plus to see whether your files are infected. When VirHUNT completes with a

**Scan Complete! NO VIRUSES FOUND**

message, no further action is necessary; and you may quit the program.

Second, if VirHUNT does identify an infected file, notify your IBM anti-virus team member or computer protection program representative for help in removing the virus and assuring that it does not spread. Your team member or representative should also notify Jean Troyer, the Computer Program Protection Manager, at extension 2-7440.



## MANAGEMENT INFORMATION SYSTEMS

### AIM SYSTEM RESPONSE TIME

CTD and Technical Information Services (TIS) have been working together to address slow response times with the Argonne Information Management (AIM) System that have occurred since the first of the year. CTD and TIS are actively pursuing solutions that include optimization of the application and a reduction in response time from the AIM System. The goal of these efforts is improved, rapid response from the AIM System.

To improve performance, CTD and TIS have made modifications to the BASISplus Relational Database Management System (RDBMS), the central VAX 8700, and the Laboratory-wide network. Such activities include rerouting the network connection of the AIM terminals in the ANL libraries and optimizing the BASISplus software. With the growing number of AIM System users and increasing network traffic, CTD continues to look for ways to optimize and tune the existing environment as well as to develop long-term changes to solve problems.

### POWDER DIFFRACTION FILES ADDED TO THE AIM SYSTEM

In January 1992, the International Centre for Diffraction Data (ICDD) Powder Diffraction File (PDF) was placed into production in the Argonne Information Management (AIM) System. The PDF database consists of numerical data, a collection of single-phased x-ray powder diffraction patterns in the form of tables of interplanar spacings ( $d$ ) and relative intensities ( $I/I_1$ ). The PDF is searchable by chemical name and formula, as well as mineral name, and includes Miller indices, cell data, and physical properties, together with references for source information, where such data are available. Currently, the PDF database contains more than 55,000 patterns.

The PDF database is accessible through the AIM System, which is available through the dial-up mode or network connection to node ANLCV2 or through access in the ANL libraries. To access the PDF

database in your interactive session on node ANLCV2, enter:

#### AIM

In the AIM System main menu, the PDF database is available as option H.

To access the AIM System on the central VAX 8700, node ANLCV2, you should obtain a central VAX cluster account, available from Account Services (Building 221, A-147, extension 2-5425).

### INTEGRATED FINANCIAL SYSTEM UPDATE

In February 1992, the Integrated Financial System (IFS) Project Team visited ANL-West and demonstrated a prototype of a new online system for entering scientific effort data. In March 1992, the team will conduct further reviews of this prototype at ANL-East.

When completed, this system will allow Laboratory divisions to enter their monthly scientific effort data directly from their own terminals or personal computers. Another function will allow users to upload this data from personal computers by file transfer.

This system will validate the effort data as it is entered, thereby ensuring that scientific effort data has been recorded and balanced for all of the appropriate people in a division before it is transferred to Cost Accounting. This will set the foundation for giving the users a longer time window in which to gather this data within their division. The project team expects that this new time frame will reduce the number of discrepancies in paid absence data entered into the Human Resource System.

Further information about this project and about progress on all other phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the third working Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## PERSONAL COMPUTING

### **CTD PROVIDES RANGE OF LOCAL AREA NETWORK SERVICES**

To address various needs associated with the growing number of local area networks (LANs) at ANL, CTD provides a broad range of capabilities and services. The Computer Network Section provides assistance in determining requirements for cable design with copper and fiber optic cable for transmission of data or video teleconferencing. They also provide guidance in acquiring and configuring equipment to integrate divisional LANs with Laboratory-wide, regional, and national networks. Additionally, they provide assistance in analyzing LAN traffic and recommendations to improve network throughput. For additional information, contact the Computer Network Section at extension 2-7270.

The Computer Operations Section personnel provide a full-function Network Operations Center (NOC) service. They monitor the Laboratory-wide network and the networks that provide user access to the central computers and the external networks. Arrangements can be made on a fixed-fee basis to extend the NOC monitoring capabilities to divisional LANs.

CTD provides divisions with assistance for system or LAN administrations on a service request or monthly fee basis. Activities include upgrading network operating systems, installing applications software, configuring servers and clients for connection to the Laboratory-wide network, establishing electronic mail servers and gateways, trouble shooting, and other technical assistance. These services apply to personal computer LANs as well as DEC VAX and Unix LANs. For additional information, contact the User Services Section at extension 2-7419 or the Systems Programming Section at extension 2-5449.

CTD maintains a heterogeneous LAN environment to investigate and address connectivity and interoperability issues. This environment currently includes AppleTalk, DEC Pathworks, MS LanManager, 3Com 3+Open and 3+Share, Unix Transmission Control Protocol/Internet Protocol (TCP/IP) networking, and Open Systems Interconnection (OSI)-based products. CTD provides assis-

tance in configuring network servers and client workstations to allow access across the Laboratory-wide network. Routing the Digital Equipment Corporation network (DECnet) and the TCP/IP network traffic over the Laboratory-wide network has been a long-standing capability. Recently, CTD completed a project to implement the routing of the Xerox Network System (XNS) traffic used by 3Com, LanManager, and other networks. The Laboratory-wide network currently does not route Novell network traffic. CTD is acquiring a Novell NetWare server to begin addressing alternatives for connecting Novell networks to the Laboratory-wide network.

To address the need for future distributed databases and applications, Management Information Systems and User Services personnel will be developing prototype client-server applications with Structured Query Language (SQL)-based products. Initial work will be done with the Microsoft SQL Server product, which runs in the LanManager environment. For additional information, contact Management Information Systems at extension 2-7329.

### **ELECTRONICS OFFERS NOVELL NETWORKING SERVICES**

The Electronics Department is initiating a wide range of services for Novell networks: network design, installation, configuration, and administration. Electronics has a Novell Certified NetWare Engineer (CNE) to meet your needs.

Electronics also maintains a Novell network in Building 222 running the Version 3.11 operating system to test configurations and to demonstrate network functionality. Many of the parts needed to build or expand a network are stocked and available for installation by Electronics personnel. Electronics can also provide equipment selection assistance.

Electronics provides assistance in upgrading 3Com networks to Novell's 3.11 operating system. Such a migration can be accomplished by purchasing a migration package from Novell. Novell is offering special pricing on NetWare V3.11 for 3Com users.

Special circumstances arise when connecting Novell or other local area networks to the Laboratory-wide Ethernet.



For further information and assistance, call Earl Welch at extension 2-5998.

# **LPR IS NOW INCLUDED WITH NCSA TELNET DISKETTE**

The print utilities for MS-DOS personal computers attached to a Transmission Control Protocol/Internet Protocol (TCP/IP) network are **lpr**, **lpq**, and **lprm**. These programs are implementations of the similarly named Unix utilities that allow printing to any remote printer accessible to the TCP/IP network (including CTD's new color PostScript printer and Media Services devices).

The print utilities **lpr**, **lpq**, and **lprm** are public domain software and will now be included on the National Center for Supercomputing Applications (NCSA) Telnet disk distributed by CTD.

To access the Laboratory-wide TCP/IP network with a personal computer, you must have a suitable network connection. The **lpr** utility is compatible with the following popular Ethernet adapter boards:

- 3Com Models 3C501, 3C503, 3C507, and 3C523
- MICOM NI5210
- Ungermann-Bass
- Western Digital WD8003E

Your local area network will need to be connected to the Laboratory-wide network if you intend to access CTD or Media Services printers (see "New Color Hardcopy Service Available" in the February 1992 *Newsletter*).

To use the **lpr** utility, you must make the following modifications to your **autoexec.bat** file:

```
SET PRINTER=prntname
SET SERVER=nodename
SET CONFIGTEL=path/config.tel
lpr -CBnnnnn
```

where "prntname" is the name of the desired printer (for example, 3800), "nodename" is the fully qualified IP domain address (for example, anlcv1.ctd.anl.gov), "path" is the appropriate directory, "config.tel" is the NCSA Telnet configuration file, and "Bnnnnn" is your employee badge number.

If you are already using NCSA Telnet, no further modification is necessary to your **config.tel** file.

Once installation is complete, the command for printing to the device specified in **SET PRINTER** is:

```
lpr path/filename
```

To check the printer's queue, use the **lpq** utility. To cancel a print job, use the **lprm** utility. CTD can assist in the installation of **lpr**. Contact Jim Regula at electronic mail address [regula@anl.gov](mailto:regula@anl.gov) or at extension 2-7622.

# **KERMIT VERSION 3.11 FOR IBM PERSONAL COMPUTERS AVAILABLE**

The MS-DOS Kermit 3.11 file transfer and terminal emulation program is now available for IBM Personal Computers.

New features of Kermit 3.11 are:

- New and improved Kermit scripts for ANL onsite use in connecting to the central mainframe computers by using the Machine Keyboard Origination (MKO).
- Built-in Transmission Control Protocol/Internet Protocol (TCP/IP) networking compatibility for use with packet drivers and Ethernet cards on the Laboratory-wide network.
- Capability for translating Cyrillic character sets during file transfer.
- Capability for full-duplex Request To Send/Clear To Send (RTS/CTS) flow control for use with high-speed modems (compatible, in turn, with the ANL modem pool).
- User-settable serial port address and Interrupt Request (IRQ) line.

CTD is distributing Kermit 3.11 with locally developed commands that automate much of the login sequence for access to the Systems Network Architecture (SNA) for CMS and Wylbur, the VAX cluster, the Customer Information Control System (CICS), and the Materials CATalog (MCAT). The commands work only onsite at Argonne and require an Asynchronous Communication Interface (ACI) or



an Asynchronous Data Interface (ADI) modem with the MKO option.

The Kermit 3.11 diskettes distributed by CTD allow VAX users to use the NUMLOCK key as the VT-terminal gold key (see "VT-Terminal Keypad Definition for Kermit" in the August 1989 *Newsletter*). Key mappings for the Hydra Protocol Converter are also included with Kermit 3.11.

*Kermit-MS for IBM Personal Computer, Version 3.11* (a 3 1/2-inch diskette) and *Using MS-DOS Kermit, Version 3.11* (which includes a 5 1/4-inch diskette) are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

#### **PUBLIC DOS FILE SYSTEM AVAILABLE**

CTD has made a DOS file system in the Argonne central VAX cluster available to Argonne users of IBM Personal Computers and compatibles with DEC's Pathworks for DOS networking products. (See "Pathworks PC-LAN Services Available" in the November 1991 *Newsletter*.) The file system occupies a portion of a central VAX cluster disk that holds DOS files and programs. The contents are limited to those that are not proprietary and have no associated license fees. User contributed DOS programs will be considered for addition to the file system.

Because CTD will use the file system to distribute materials that might otherwise be made available on a floppy disk, there is no fee to access the file system. Eliminating the effort that it takes to produce and distribute floppy disks should more than offset the nominal computer and network resources that the service will consume.

If you have the Pathworks for DOS product, you may access the DOS public read-only file system without needing an account on the VAX DOS file server. If you need to access other file system services or print services, you will need a central VAX cluster account. You may access the file system by using the DOS Pathworks LANManager command. Enter:

```
C:\> USE ?: \\ANLCV1\DOS-PUBLIC
```

We have placed a file called OCONTENT.TXT on the top-level directory and in each subdirectory. The OCONTENT.TXT files will be updated to contain the names of other files and directories in each directory and short descriptions. Look for other README-type files for further information where available.

The virus detection and eradication programs (Data Physician Plus, Version 3.0C) from DOE (see "DOE Obtains Virus Detection and Eradication Programs for Lab-Wide Use" in this *Newsletter*) are available in subdirectory DPP-30C in the DOS public file system. Also available at this time are some miscellaneous PostScript files, MS-Kermit 3.11, and driver programs for the Seiko color PostScript printer available in Building 221 (see "New Color Hard-copy Service Available" in the February 1992 *Newsletter*).

#### **SCIENTIFIC WORKSTATIONS**

##### **HP 720 WORKSTATION EXPERIENCE**

As reported in the December 1991 *Argonne Computing Newsletter*, Hewlett-Packard (HP) provided CTD with a reduced instruction set computer (RISC) workstation Model 720 for Argonne to evaluate from mid-November 1991 through the end of January 1992. Twenty users from ten different divisions took advantage of the HP 720's availability to benchmark their Fortran codes.

Most users who obtained accounts on the HP 720 were pleased with their experiences. The workstation, which is rated at 59.5 SPEC marks, 57 MIPs, and 18 LINPACK MFLOPS, received very good reviews from several of the Laboratory researchers. Both software and hardware were very stable, and the effort needed to convert the user programs to the HP 720 was minimal.

Bob Schmitt (Materials and Components Technology) moved COMMIX-M (30,000 lines of Fortran) to the HP 720. COMMIX-M is a three-dimensional transient multi-phase computer program for thermal-hydraulic analysis of single and multi-component engineering systems. Because the memory allocation routine (malloc) worked as expected on the HP 720, the conversion was somewhat easier

than an earlier port to the IBM RS6000 Model 550 (IBM 550). Bob encountered no execution problems on the HP 720, in contrast to recent experience on the IBM 550, where execution of one test case repeatedly brought the system down.

Once the code was tested and executed on the HP 720, Steve Pruitt (Hewlett-Packard) ran the code on an HP 730 and an HP 750. The relative execution times for COMMIX-M on the SPARC2, HP 720, HP 730, and HP 750 are illustrated in Figure 1.

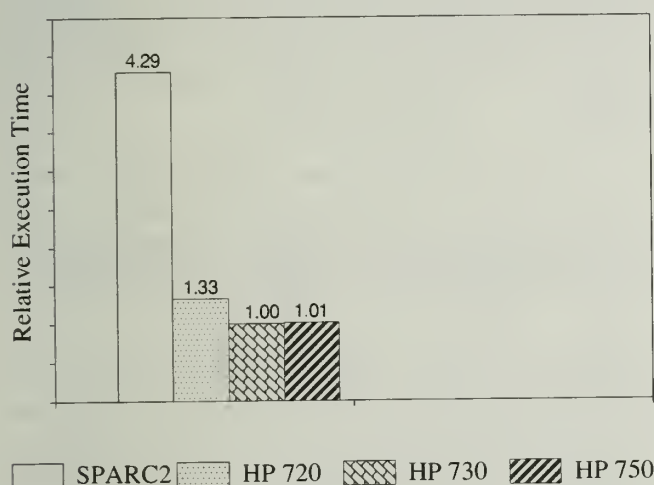


Figure 1: Relative Execution Times for COMMIX-M

Pat Garner (Reactor Analysis) used two cases to benchmark another version of COMMIX (COMMIX-1AR/P, a three-dimensional thermal-hydraulic analysis code with 36,000 lines of Fortran). Case 1 was a small geometry check-out problem, whereas Case 2 was larger and more representative of a normal production problem.

The two tests on the the HP 720, HP 750, and IBM 550 used double-precision floating-point numbers. It took approximately a week to diagnose a storage alignment bug during the conversion of the original short-word version of the code to the HP 720 and HP 750. The storage alignment problem caused the program to terminate during execution with a bus error. Storage alignment is not as restrictive on other short-word machines.

The relative execution times of the two COMMIX-1AR/P tests on the IBM 550, HP 720, and HP 750 are illustrated in Figure 2.

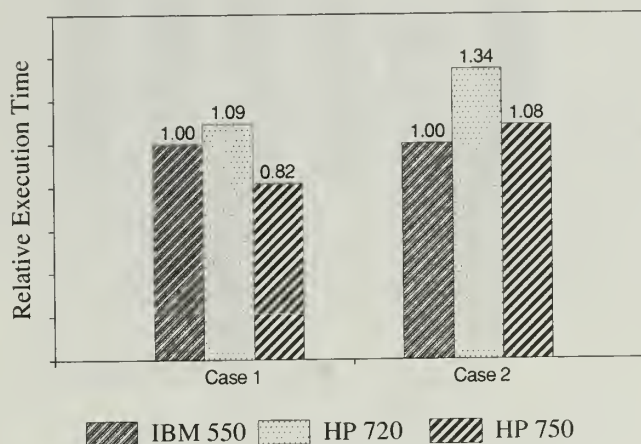


Figure 2: Relative Execution Times for COMMIX-1AR/P

Jasmina Vujic (Reactor Analysis) has run three GTRAN2 test cases on the HP 720 and the HP 750. GTRAN2 is a reactor lattice physics code primarily used for the analysis and design of modern nuclear reactor assemblies. Jasmina has studied GTRAN2 extensively on several computer systems, including the IBM 550. In the test cases 1 through 3, GTRAN2 generated solutions for 384, 874, and 1560 unknowns, respectively. The relative execution times for each of the three cases are illustrated in Figure 3 for the IBM 550, HP 720, and HP 750.

Keith Derstine (Reactor Analysis) has run two REBUS3 (Nodal Diffusion Theory) test cases on the HP 720 and HP 750. The first case performed one neutronics step, and the second case performed three neutronics steps. The relative execution times for the two REBUS3 test cases are illustrated in Figure 4 for the Cray X-MP, HP 720, and HP 750.

Larry Rudinski (Computing and Telecommunications) chose to execute on the HP 720 two benchmarks that had been vector-optimized to perform well (183 and 141 MFLOPS) on the Cray X-MP. Even though the Cray X-MP outperformed the HP 720 by factors of 13.1 and 5.7 on these two bench-



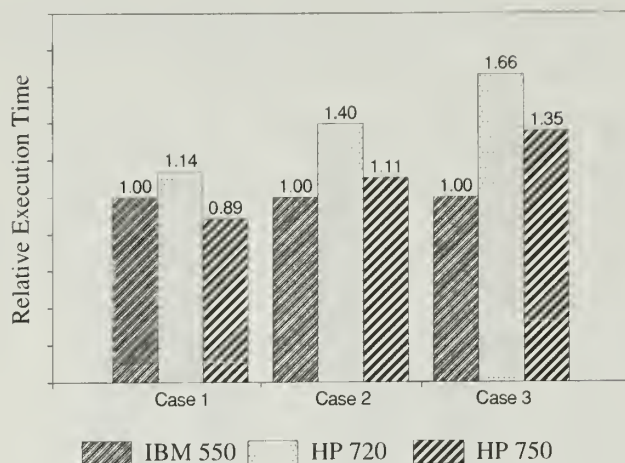


Figure 3: Relative Execution Times for GTRAN2

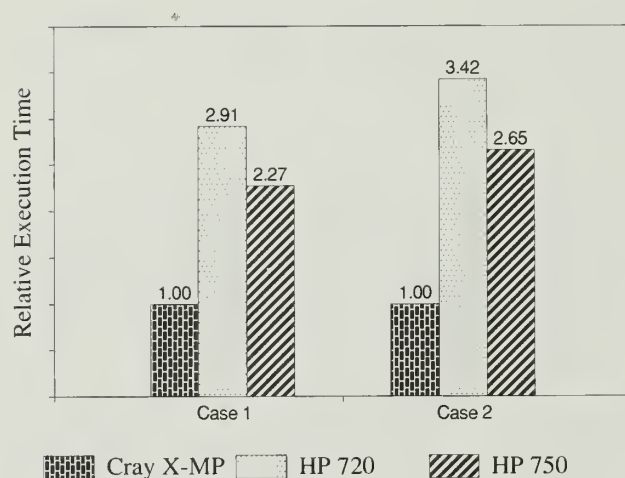


Figure 4: Relative Execution Times for REBUS3

marks, the MFLOPS on the HP720 still reached 14.0 and 24.9, respectively. These two benchmarks demonstrate that programs optimized for a specific architecture (such as a Cray X-MP) generally execute well on very different architectures (such as the HP 720).

Because of the interest in this technology, CTD plans to continue to provide scientific workstations for evaluation at the Laboratory.

### DIGITAL EQUIPMENT CORPORATION DECSTATION 5000/240 AVAILABLE FOR USER TRIAL

Digital Equipment Corporation (DEC) has loaned Argonne National Laboratory a DECstation 5000/240 reduced instruction set computer (RISC) workstation for trial and evaluation for 30 days. On Monday, March 2, 1992, CTD installed this machine. The Internet address is [decdemo.ctd.anl.gov](mailto:decdemo.ctd.anl.gov).

The DECstation 5000/240 is rated at 32.4 SPECmarks. The Model 240 has 64 megabytes of main memory and a total of 1 gigabyte of disk storage. Available software includes the Fortran and C compilers and the DECstation X Window environment.

To test the DECstation 5000/240 RISC workstation, contact Larry Rudsinski at extension 2-7219 or at Internet address [b26605@achilles.ctd.anl.gov](mailto:b26605@achilles.ctd.anl.gov) or Steve Karlovsky at extension 2-7205 or at electronic mail address [karlovsk@anl.gov](mailto:karlovsk@anl.gov) for an account. CTD is especially interested in users' experiences with the workstation and reactions to the Model 240's performance. In exchange for its free use, CTD would appreciate receiving copies of any documented experiences and performance results achieved while using this machine.

## TELECOMMUNICATIONS NEWS

### LABORATORY-WIDE ELECTRONIC MAIL LISTS

Two Laboratory-wide electronic mail lists have been implemented to disseminate quickly important information pertaining to computer security and coordination of network activities: (1) the ANL Computer Security mailing list consists of those individuals in each division with the responsibility for dealing with viruses or other areas of computer protection and (2) the ANL net manager mailing list consists of divisional network managers and other individuals responsible for maintaining divisional local area networks.

Anyone may check the contents of these lists by establishing a telnet connection to Mail server port 25 on [achilles](mailto:achilles) as follows:



```
telnet achilles.ctd.anl.gov 25
EXPN anl-net-mgr
QUIT
```

You may request to be added to either list by sending electronic mail to the appropriate addresses:

```
anl-computer-security-request@achilles.ctd.anl.gov
```

or

```
anl-net-mgr-request@achilles.ctd.anl.gov
```

After you have been added to a list, you will automatically receive your electronic mail copy when electronic notices are sent out.

## UNIX NEWS

### ACCESSING X WINDOW APPLICATIONS ON THE ARGONNE CENTRAL VAX CLUSTER

The Argonne central VAX cluster has many X Window System applications that you can access from a Unix workstation with X Window System software. Some of the applications are Tellagraf and Tellagraf menus, programs that you write with the Disspla library, the Statistical Analysis System (SAS), ANSYS, the Text Processing Utility (TPU) editors--the Extensible VAX Editor (EVE) and the Language Sensitive Editor (LSE)--the Source Code Analyzer, the Symbolic Debugger, xmovie, xwindump, and the Digital X Window desk accessories (including Bookreader, the CDA Viewer, Calculator, Calendar, Cardfiler, Clock, DECterm, FileView, Mail, Notepad, and Paint).

You run X Window applications on the central VAX cluster in sessions of your VAX cluster account. You can run the applications either without first logging in or after logging in from an xterm, telnet, or rlogin interactive session. Note that VMS commands are not case sensitive; we use lowercase to denote command tokens that you must supply. Enter uppercase tokens as shown in either uppercase or lowercase.

### Using rsh

To run an X Window system application without logging into the VAX cluster, use the Transmission Control Protocol/Internet Protocol (TCP/IP) rsh command. Enter:

```
rsh anlcv1 'dcl command' >/dev/null &
```

where "dcl command" is the command on the VAX cluster that starts your X Window program and ">/dev/null" redirects the output from the remote shell to the null device. The ampersand places the rsh session into the background so you may do other work from your session. You may need to enter the full node specification anlcv1.ctd.anl.gov in place of anlcv1. For example, you may run the FileView application by entering:

```
rsh anlcv1 'run sys$system:vue$master'
>/dev/null &
```

To use rsh to execute any remote commands, X Window or not, you must first create an .rhosts file in your default login directory on the VAX cluster. The .rhosts file entry contains the node name and login-name for your account on your Unix workstation. The .rhosts file is used by the remote shell system on the VAX cluster to authenticate access to the VAX cluster account.

### Using xterm

You may run X Window applications from an xterm session in which you first logged into the VAX cluster. To make it easier to find applications, we have implemented a SETUP command to define easy-to-remember symbols to access X Window System applications. After logging in, enter:

```
CV1 $ SETUP XW
```

This command also creates a virtual display to your workstation by using the TCP/IP network transport. To view the virtual display definition, enter:

```
CV1 $ SHOW DISPLAY
```

Then enter a command to execute an X Window System application. For example, to start up the FileView application, enter:

```
CV1 $ xfile
```

The "x" commands place the application process into the background by using the VMS spawn command (much like the & in Unix). You can display a list of the "x" commands by entering:

```
CV1 $ SHOW SYMBOL x*
```

### Using FileView

The FileView application, once started, is a vehicle for starting some of the common X Window applications. Choose "Applications" on the FileView menu bar to see a list of the desk accessories. Other menu items also execute some X Window applications as well.

### X Window Applications

After logging into the VAX cluster and after executing the **SETUP XW** command, you can display a list of X Window System applications on the Argonne central VAX cluster by entering:

```
CV1 $ XLIST
```

For additional assistance, contact the User Services consultants at extension 2-5405 or Rich Raffenetti at extension 2-8497.

## VAX/VMS NEWS

### ONLINE CALCULATOR UPDATE AVAILABLE

CTD has purchased an upgrade of the site license for the Online Calculator product that runs on VAX/VMS computers. The Online Calculator is a handy utility that creates a calculator display on full-screen text terminals and employs the VT keypad for input. No training is needed to use it. The new version, Release 91.0, which is available on the Argonne central VAX cluster, has a new statistical mode that you may access from the command line by entering:

```
$ DSCALC /STAT
```

Or, from the configurator when the calculator is on your display, you may access the new mode by entering \$ and toggling the mode with the keypad ENTER key.

Managers of VAX/VMS computers at Argonne may request access to the distribution kit by calling Barry Miller at extension 2-6808. If you do not already have the identifier for access, we will assign it to your VAX cluster account. In addition, we will send you a copy of the installation instructions.

You may obtain information about using DSCALC by entering

```
$ HELP DSCALC
```

or by entering H in the calculator display. More extensive information is available from the HELP command.

## BITS & BYTES

### RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### IBM Documents

The following two documents refer to features in VS Fortran Release 2.5.0, which CTD has not installed yet.

*The IBM VS FORTRAN Version 2 Language and Library Reference, Release 5* (SC26-4221-6) contains detailed information on the VS Fortran Version 2 language and library. Readers should have a basic understanding of Fortran. This document supersedes the *IBM VS FORTRAN Version 2 Language and Library Reference, Release 4* (SC26-4221-4).

*The IBM VS FORTRAN Version 2 Programming Guide for CMS and MVS, Release 5* (SC26-4222-5) contains information about how to code, compile, and run VS Fortran programs on CMS and MVS. For application programming, you will need to use



both this book and the *IBM VS FORTRAN Version 2 Language and Library Reference*. Readers should have a basic understanding of Fortran. This document supersedes the *IBM VS FORTRAN Version 2 Programming Guide for CMS and MVS, Release 4* (SC26-4222-4).

### NCSA Documents

*NCSA Telnet for the Macintosh, Version 2.4* is a user's guide that describes how to use the National Center for Supercomputing Applications (NCSA) Telnet for Macintosh Version 2.4 on an Apple Macintosh to access Telnet hosts on Transmission Control Protocol/Internet Protocol (TCP/IP) networks. This document has eight chapters: "Getting Started," "Using the Keyboard," "Customizing the Environment," "Advanced Features," "File Transfer," "Tektronix 4014 Emulation," "Interactive Color Raster Graphics," and "System Administrator Information." The three appendixes describe NCSA Telnet's error messages, code to convert Unix */etc/hosts* files, and procedures for obtaining NCSA software. A CTD addendum describes site-dependent features.

### University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (February 3, 1992) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of November 26, 1991.

## BULLETIN

### BULLETIN OF JANUARY 28, 1992

#### ANOTHER CRAY RATE DISCOUNT PLANNED

In light of the significant response to the less expensive high-performance computing offered during the holiday season, the Computing Policy Committee has recommended and the Chief Financial Officer has approved a second Cray X-MP rate discount offer. For a limited time beginning at 7:00 p.m. Friday, February 14 (Valentine's Day), 1992, Class z has been available on the Cray X-MP at a CPU rate of \$75 per hour. Memory and I/O

charges are also lower for Class z to 15 percent of CTD's base (Class w) rate.

CTD made Class z available until 7:00 p.m. Friday, February 28, 1992. Because the discount rate succeeded in increasing utilization and attracting new users to the Cray X-MP, CTD plans to extend the discount period until 7:00 a.m. Monday, March 16, 1992.

Class z executes at the lowest priority among the batch queues. Therefore, users with turnaround deadlines may need to use higher priority job classes.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD FEBRUARY 4, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:05 p.m.

**Current IBM Disk Problems.** Gary Schlesselman (Computing and Telecommunications) reported on the recent rash of IBM disk failures. The first failure occurred on November 21, 1991, and the Sentinel Computer Corporation replaced the head and disk assembly (HDA). Additional failures occurred on January 5, 14, 16, 21, 23, and 28, 1992. On the mornings of January 23 and 25, 1991, Sentinel installed replacements for two banks of disks.

Sentinel examined two sets of filters, plena, and HDAs from both a functioning and failed unit to identify the cause for the string of failures. The results showed expected read/write surface damage to the failed unit but none on the unfailed unit. No residues, penetration, or deterioration were found on the components of the unfailed unit, as might be expected if a contaminant were present in the room. The cause of the failures is still unknown.

To help users recover from these failures, CTD has instituted incremental backups on the PERM volumes and full dumps of Virtual Storage Access Method (VSAM) files, which cannot be incrementally backed up. In addition, CTD decided to replace these older (1982-1985) IBM disks with newer (1987) Amdahl disks. The maintenance costs are



about the same, but the purchase price of the newer disks is about \$31,000. The Amdahl disks are sealed units, while the IBM disks use the air in the room to flow over the components. Amdahl disk units involve only one volume address when an HDA failure occurs, whereas IBM 3380s involve two volumes even when only one has been directly affected. However, since the replacement Amdahl disks hold twice the data of an IBM volume, this advantage is null. Experience with the Amdahl disks has shown that failures occur in a non-catastrophic manner, with warning messages generated well in advance of failure. Also, IBM has announced that maintenance for the older IBM disks will stop in 1993.

**GPE Item List.** Larry Amiot (Computing and Telecommunications) reported on the General Purpose Equipment (GPE) list submitted by CTD and prioritized through interaction with the Computing Policy Committee (CPC). The list included a base list as well as a reduced and enhanced alteration of the base list. With a total funding level of \$360,200, the base list included a fiber distributed data interface analyzer (\$75,200), 6 gigabytes of disk storage for the VAX cluster (\$50,000), a DECnet name server (\$15,000), a host machine for the Network Operations Center to survey the attached networks better (\$30,000), memory and vector processing upgrades to the VAX 6410 (\$46,000), a couple of reduced instruction set computer (RISC) workstations for parallel processing development (\$40,000), an rgb color film processor and graphics workstation (\$30,000), a SPARCserver upgrade for one of the Suns (\$26,000), and a cartridge tape controller that allows data compression (2 to 5 times as much storage) and multiple paths to the tape units (\$48,000). The enhanced list adds \$100,000 to the RISC workstation and visualization items, while the reduced list (\$256,200 total) removes the visualization equipment, the SPARCserver upgrade, and the cartridge tape controller. Where the money for the new Amdahl disks will come from has not yet been determined. (After this presentation, CTD received a GPE allocation of \$300,000 plus \$31,000 of "emergency" capital funds to replace the aging IBM disk units.)

**Discount Rate Trial on the Cray.** Doug Engert (Computing and Telecommunications) reported on the holiday usage of the Cray and announced a second rate reduction trial for the last two weeks in February 1992. Over the Christmas/New Year holiday period, CTD reduced the rate for

class y jobs to 5 percent of the normal rate (\$25 per hour). This reduction brought in new work on the Cray, resulting in an 83 percent utilization factor and \$12,000 instead of the \$3,000 anticipated revenue. When the period ended, the utilization returned to the low levels experienced recently (18 percent before the holidays and 15 percent afterwards). Since the revenue coming in is not enough to pay for keeping the Cray running, the choices are (1) to attract new work by a lower cost class or (2) to turn the Cray off. During the last two weeks of February 1992, class z will be in effect (\$75 per hour). If this sale brings in new work and increases the revenue to levels that pay for the operation of the Cray, the sale may be extended. Laboratory management is trying to determine if turning the Cray off is a viable alternative if revenue does not increase. Contractual agreements with the Cray are also being examined.

Several users pointed out that those who may not be familiar with job submission and retrieval on the Cray may need a more sustained period and greater lead time to prepare jobs and make use of the Cray. Also, if low cost computing were assured in the future, some groups may decide to use the Cray resources rather than purchase RISC workstations, but this purchase would require longer term assurance of the resource.

Larry Rudinski (Computing and Telecommunications) reported that the Numerical Algorithms Group (NAG) Fortran 90 compiler will be available on [achilles.ctd.anl.gov](http://achilles.ctd.anl.gov) through March 1992 for user testing. (See "NAGWare Fortran 90 Available for 60-Day Trial" in this *Newsletter*.)

**Results of the HP 720 User Testing.** Larry Rudinski then introduced three of the users who ran test jobs on the Hewlett-Packard (HP) 720 system during the 60 days it was available for user testing.

Pat Garner, Keith Derstine (Reactor Analysis), and Bob Schmitt (Materials and Components Technology) reported on their experiences. Pat and Keith experienced some problems understanding some early error messages and learning how the debugger worked on the system, but were able to run numerous benchmark problems afterward. Bob reported no problems in porting and found the HP was able to run one problem that the RS6000 continually failed on for no explainable reason. The HP was about twice as slow as the Cray on large jobs that did not vectorize. These results were comparable to the



RS6000. When vector codes were compared, the system was about six times slower than the Cray. On some jobs, the HP was just as fast as the Cray. This system costs about \$25,000 for an HP 730 with 48 megabytes of memory and 2 gigabytes of disk storage. However, this system can be cost-effective. (See "HP 720 Workstation Experience" in this *Newsletter*.)

**CPC Meeting Report.** Pat Garner reported on the CPC meeting held on January 20, 1992. Three agenda items were discussed: (1) CTD's GPE Request: Final prioritization was completed and sent to John Unik. (2) Future of Scientific Computing: A summary of survey responses from the various Associate Laboratory Director (ALD) areas generally showed the highest interest in all forms of networking and distributed computing (minicomputers, workstations, and personal computers) but low interest in onsite central computing, except for data storage and graphics/printing. Some ALDs indicated mid-to-high need for the VAX and the IBM. (3) Cost Recovery and Utilization: Because of low use, CTD is not recovering the costs of running the Cray. The Program Administration Coordination Team (PACT) has suggested unplugging the Cray. CTD is to report back on the ramifications of this step (including contract obligations, cost savings, and computing alternatives). As an alternative, CTD is looking at the possibility of replacing the Cray X-MP with a less expensive Cray machine. CTD will also conduct a rate experiment to see if income and utilization can be increased.

The CUG meeting adjourned at 4:18 p.m.

Ken Miles, CUG Secretary

The Computer Users Group normally meets on the first Tuesday of each month at 3:00 p.m. in Building 221, Room A-216. Contact Pat Garner (extension 2-4872) or Ken Miles (extension 2-3095) to be placed on the distribution list for meeting announcements or for additional information.

#### **MINUTES OF THE MACINTOSH USERS GROUP MEETING HELD FEBRUARY 12, 1992**

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m. in Building 221, Room A-216.

Rodney East (Materials Science) demonstrated the use of the Apple Macintosh Communications Toolbox within VersaTerm. He demonstrated the many ways and options that you have when transferring files to and from the Apple Macintosh as binary, MacBinary (includes the Resource fork), or text files. At the same time, you can have available the full functionality of VersaTerm, including Tektronix terminal emulation. If you are running System 6.0.x, Rodney recommends that you use the Communication Toolbox Installer. If you are running System 7.0, Rodney recommends that you do not use the Communication Toolbox Installer. Just drag the files to the System folder, and they will be put in the right place. A person from the audience reported that new VersaTerm manuals have appropriate warnings so that the installation of VersaTerm running under System 7.0 can be properly implemented. The details of file transfer are somewhat harder to explain. If you are having trouble with file transfers between various types of computers and the Apple Macintosh, including between mainframes and the Apple Macintosh, you should probably talk directly to Rodney. He is available via QuickMail.

Barry Miller (Computing and Telecommunications) and Eliot Axelrod (Apple Computer) demonstrated the use of MacX, Apple's X Window server application for the Apple Macintosh. With MacX, you are able to run X Window client applications on other platforms (such as Unix workstations or VAX systems). X Window server users (for example, Apple Macintosh computers, personal computers, workstations, and X terminals) can access a common set of X client applications. Barry showed how MacX can handle color, text, graphics, and moving images. MacX Version 1.1.7 can cut entire monitor screens, windows, or selected rectangular sections of windows and paste the contents (including colors) into Apple Macintosh applications. Barry demonstrated Ximage, an X client executing on a Sun, which displayed a rotating color image on the Apple Macintosh. Then he demonstrated true multitasking by using an online documentation tool called Bookreader (VMS) while the image rotated in the background. Bookreader documents can contain text, graphics, and images. You can access Bookreader document topics from a Table of Contents or an Index. Hot spots are available that take you directly to the appropriate graphic display.

The Technical Information Services (TIS) The Information and Publishing Division (IPD) Depart-

ment is currently investigating X client online documentation applications. You can also use MacX to run such mainframe applications as SAS, ANSYS, and NCSA Ximage.

MacX can be purchased two ways. Argonne employees can purchase it for about \$30.00, because ANL has a site license agreement with Apple Computer. Contact Dave Lifka (Computing and Telecommunications) via QuickMail if you would like more information.

MacX is also part of a bundled set of Apple Macintosh client applications (MacX, MacTerminal, DAL, and DECnet) sold by DEC. The Pathworks client bundle can be purchased from DEC for about \$150. See your divisional VAX representatives or Barry Miller for more information.

Both demonstrations were aided by the use of a MediaPro liquid crystal display (LCD) color screen (from nView Corporation, Newport News, Virginia, 804/873-1354) sitting on an overhead projector. This screen was brought in by Eliot Axelrod for the MacX demonstration. The screen was driven by an Apple Macintosh IIci but will run on any Apple Macintosh II series computer. The overall projected image was bright and very clear without any of the tearing problems experienced by the overhead projector currently in use in Building 221, Room A-216. The projector had no problem displaying the cursor as it was moved about the screen.

On Tuesday, February 18, 1992, Apple Computer will present four seminars on scientific computing and software development. The seminars will use the Apple Macintosh Quadra computers, both the 700 and the 900 models. These seminars will be held in Building 212, Room A-157. At 11:00 a.m., BiMillennium Corporation will demonstrate HiQ, a numerical solution engine with graphics designed for the scientist or engineer. At 12 noon, Mathematica will show their symbolic and numeric resolver for the Apple Macintosh. At 1:00 p.m., Absoft will review their version of Fortran for the Apple Macintosh; and, at 2 p.m., Apple Computer will discuss program development for the Apple Macintosh. After the seminars, the two Quadras will be available to interested Argonne employees for further evaluation through February 27, 1992. Contact Dave Lifka at extension 2-3251 for more details on the Quadra evaluation. Contact Eliot Axelrod at (708) 518-2697 for more information on the four seminars.

Bob Kampwirth reported that if you are having trouble getting the information you need at the University of Chicago Computing Center, you should ask for Jerry Freedman. Bob found Jerry to be very helpful and knowledgeable.

Four System 7.0 problems were discussed with Eliot Axelrod. **PROBLEM:** Putting System 7.0 on an early Apple Macintosh II results in windows that close unexpectedly. **ANSWER:** You should have your hardware repair person check the read-only memory (ROM) to see if it has an A or B ROM. The revised ROMs solved some memory management issues. **PROBLEM:** Using QuickMail 2.5 as a server under System 7.0 is causing various problems. This happens with both System 6.0.x and 7.0.1 **ANSWER:** Talk with QuickMail people. Someone noted that QuickMail 2.5a was now out. **PROBLEM:** Early Radius displays have a problem with System 7.0. **ANSWER:** The problem is with the Radius adaptor board. Talk to Radius. **PROBLEM:** Files disappear and then reappear when one reboots the Apple Macintosh computer. **ANSWER:** This appears to be a binary tree (B tree) structure problem. Apple is looking into this problem. For now, just reformat your hard disk and reload your files. This rebuilds the binary tree structure. Simply rebuilding the desktop by holding down the command and option keys when you reboot your Apple Macintosh is not enough.

Ralph Leonard (Chemical Technology) is continuing to collect information on the use of System 7.0. Please send him a QuickMail note if (1) you had trouble getting System 7.0 to work properly and found a trick that allowed you to get it working properly or (2) you are having problems with System 7.0. He will see that any System 7.0 questions or problems get forwarded to Eliot Axelrod for answers. Eliot Axelrod also reported that Adobe Type Manager (ATM) is now available for \$7.50 by calling 1-800-521-1976, extension 4400.

An error with scripting in HyperCard 2.1 was reported. If you open HyperCard, then another application, and then return to HyperCard and open scripting, the scripting debugger will automatically open.

In March 1992, the group will examine a variety of pointing devices for the Apple Macintosh, including mice and trackballs. Contact Rodney East if you have any special ideas in this area or a pointing



device you are particularly fond of and would like to see demonstrated.

The Macintosh Users Group normally meets on the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Media Services), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:20 p.m.

Ralph Leonard, Macintosh Users Group Secretary





# WORKLOAD STATISTICS (DECEMBER 20, 1991, THROUGH JANUARY 30, 1992)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,075              | 1,079        | 452                 |
| Wylbur      | 1,542              | 1,542        | 352                 |
| MVS TSO     | 57                 | 57           | 18                  |
| CICS        | 2,217              | 2,253        | 133                 |
| MVS Batch   | 2,217              | 2,253        | 688                 |
| VAX/VMS     | 660                | 664          | 379                 |
| Cray        | 356                | 355          | 129                 |
| Unix        | 148                | 150          | *                   |
| All Systems | 2,217              | 2,253        | 1,037               |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |       |         |        | SESSION TIME (HRS) | CPU TIME (HRS) |
|--------------------|--------------------------------|-------|---------|--------|--------------------|----------------|
|                    | PRIME                          | NIGHT | WEEKEND | TOTAL  |                    |                |
| <b>INTERACTIVE</b> |                                |       |         |        |                    |                |
| CMS                | 12,058                         | 2,978 | 4,172   | 19,208 | 50,467             | 118.75         |
| Wylbur             | 7,222                          | 241   | 559     | 8,022  | 8,025              | 6.90           |
| MVS TSO            | 272                            | 7     | 6       | 285    | 405                | 1.20           |
| CICS               | *                              | *     | *       | *      | *                  | *              |
| VAX/VMS            | 20,227                         | 3,116 | 3,242   | 26,585 | 20,381             | 668.82         |
| Cray               | 2061                           | 215   | 399     | 2675   | 1071               | 695.64         |
| <b>IBM BATCH</b>   |                                |       |         |        |                    |                |
| Class U            | 9,159                          | 1,946 | 2,088   | 13,193 | **                 | 50.73          |
| Class W            | 17,874                         | 2,734 | 1,549   | 22,157 | **                 | 150.02         |
| Class X            | 0                              | 695   | 37      | 732    | **                 | 38.58          |
| Class Y            | 0                              | 0     | 487     | 487    | **                 | 20.75          |
| Nonmain            | 11,760                         | 2,938 | 3,290   | 23,988 | **                 | 0.00           |
| Total              | 44,793                         | 8,313 | 7,451   | 60,557 | **                 | 260.08         |
| <b>CRAY BATCH</b>  |                                |       |         |        |                    |                |
| u                  | 2,061                          | 215   | 399     | 2,675  | **                 | 19.56          |
| w                  | 3,044                          | 314   | 516     | 3,874  | **                 | 217.98         |
| x                  | 222                            | 242   | 204     | 668    | **                 | 183.66         |
| y                  | 4,462                          | 1,223 | 2,546   | 8,231  | **                 | 267.45         |
| Total              | 7,049                          | 1,994 | 3,665   | 15,448 | **                 | 688.65         |
| <b>VMS BATCH</b>   |                                |       |         |        |                    |                |
| W BATCH            | 1,414                          | 819   | 370     | 2,603  | **                 | 179.06         |
| X BATCH            | 51                             | 60    | 19      | 130    | **                 | 128.94         |
| Y BATCH            | 0                              | 4     | 98      | 102    | **                 | 211.04         |
| Total              | 1,465                          | 883   | 487     | 2,835  | **                 | 519.04         |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               |            |
| Local                       | 53,301,290 |
| Remote                      | 52,961,366 |
| Fiche                       | 40,424,582 |
| Tape Mounts                 | 7,191      |
| Microfiche Developed        | 4,671      |
| Microfiche Frames Developed | 869,020    |

## GRAPHICS

|                   | # OF JOBS | # OF FRAMES |
|-------------------|-----------|-------------|
| CalComp Jobs      | 22        | **          |
| Matrix 35mm Color | 15        | 29          |
| Matrix-8 x 10     | 4         | 4           |
| Matrix-Negative   | 0         | 0           |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 24,778 |
| Round Tapes Saved           | 254    |
| Round Tapes Released        | 634    |
| Cartridges Saved            | 968    |
| Cartridges Released         | 632    |
| Datasets Exported to Tape   | 911    |
| Datasets Imported from Tape | 767    |

\* not available  
 \*\* not applicable

**AVAILABILITY STATISTICS, BY MACHINE (DECEMBER 20, 1991, THROUGH JANUARY 30, 1992)**

|                                           | Monthly<br>Totals | Hardware | Scheduled<br>Software | Other  | Hardware | Unscheduled<br>Software | Other |
|-------------------------------------------|-------------------|----------|-----------------------|--------|----------|-------------------------|-------|
| <b>CMS</b>                                |                   |          |                       |        |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |        |          |                         |       |
| Interruptions                             | 6.00              | 5.00     | 1.00                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 28.48             | 27.63    | 1.25                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |        |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| <b>WYLBUR</b>                             |                   |          |                       |        |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |        |          |                         |       |
| Interruptions                             | 19.00             | 5.00     | 6.00                  | 0.00   | 5.00     | 3.00                    | 0.00  |
| Hrs Unavailable                           | 48.20             | 27.40    | 6.71                  | 0.00   | 10.40    | 3.68                    | 0.00  |
| MTF/Unscheduled                           | 119.97            |          |                       |        | 191.96   | 319.93                  | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |        |          |                         |       |
| Interruptions                             | 5.00              | 0.00     | 0.00                  | 0.00   | 3.00     | 2.00                    | 0.00  |
| Hrs Unavailable                           | 6.81              | 0.00     | 0.00                  | 0.00   | 4.75     | 2.06                    | 0.00  |
| MTF/Unscheduled                           | 70.63             |          |                       | 117.72 | 176.59   | 0.00                    |       |
| <b>MVS TSO</b>                            |                   |          |                       |        |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |        |          |                         |       |
| Interruptions                             | 19.00             | 5.00     | 6.00                  | 0.00   | 5.00     | 3.00                    | 0.00  |
| Hrs Unavailable                           | 48.20             | 27.40    | 6.71                  | 0.00   | 10.40    | 3.68                    | 0.00  |
| MTF/Unscheduled                           | 119.97            |          |                       |        | 191.96   | 319.93                  | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |        |          |                         |       |
| Interruptions                             | 5.00              | 0.00     | 0.00                  | 0.00   | 3.00     | 2.00                    | 0.00  |
| Hrs Unavailable                           | 6.81              | 0.00     | 0.00                  | 0.00   | 4.75     | 2.06                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |        |          | 0.00                    |       |
| <b>JES3</b>                               |                   |          |                       |        |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |        |          |                         |       |
| Interruptions                             | 20.00             | 5.00     | 6.00                  | 0.00   | 5.00     | 4.00                    | 0.00  |
| Hrs Unavailable                           | 48.18             | 27.33    | 6.61                  | 0.00   | 10.28    | 3.95                    | 0.00  |
| MTF/Unscheduled                           | 106.64            |          |                       |        | 191.96   | 239.95                  | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |        |          |                         |       |
| Interruptions                             | 6.00              | 0.00     | 0.00                  | 0.00   | 3.00     | 3.00                    | 0.00  |
| Hrs Unavailable                           | 7.08              | 0.00     | 0.00                  | 0.00   | 4.75     | 2.33                    | 0.00  |
| MTF/Unscheduled                           | 58.81             |          |                       |        | 117.63   | 117.63                  | 0.00  |
| <b>CICS</b>                               |                   |          |                       |        |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |        |          |                         |       |
| Interruptions                             | 4.00              | 0.00     | 0.00                  | 0.00   | 2.00     | 2.00                    | 0.00  |
| Hrs Unavailable                           | 6.01              | 0.00     | 0.00                  | 0.00   | 3.91     | 2.10                    | 0.00  |
| MTF/Unscheduled                           | 250.46            |          |                       |        | 500.99   | 500.99                  | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |        |          |                         |       |
| Interruptions                             | 4.00              | 0.00     | 0.00                  | 0.00   | 2.00     | 2.00                    | 0.00  |
| Hrs Unavailable                           | 6.01              | 0.00     | 0.00                  | 0.00   | 3.91     | 2.10                    | 0.00  |
| MTF/Unscheduled                           | 88.49             |          |                       |        | 176.99   | 176.99                  | 0.00  |
| <b>VAX/VMS (VAX 8700)</b>                 |                   |          |                       |        |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |        |          |                         |       |
| Interruptions                             | 3.00              | 0.00     | 2.00                  | 0.00   | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 3.60              | 0.00     | 2.43                  | 0.00   | 0.00     | 1.16                    | 0.00  |
| MTF/Unscheduled                           | 1004.40           |          |                       |        |          | 1004.40                 | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |        |          |                         |       |
| Interruptions                             | 1.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 1.16              | 0.00     | 0.00                  | 0.00   | 0.00     | 1.16                    | 0.00  |
| MTF/Unscheduled                           | 358.83            |          |                       |        |          | 358.83                  | 0.00  |
| <b>VAX/VMS (VAX 6410)</b>                 |                   |          |                       |        |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |        |          |                         |       |
| Interruptions                             | 1.00              | 0.00     | 1.00                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.25              | 0.00     | 0.25                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |        |          | 0.00                    |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |        |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 0.00              |          |                       |        |          | 0.00                    |       |
| <b>CRAY</b>                               |                   |          |                       |        |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |        |          |                         |       |
| Interruptions                             | 06.00             | 5.00     | 0.00                  | 0.00   | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 16.41             | 15.41    | 0.71                  | 0.00   | 0.00     | 1.00                    | 0.00  |
| MTF/Unscheduled                           | 991.58            |          |                       |        |          | 991.58                  | 0.00  |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |        |          |                         |       |
| Interruptions                             | 1.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 1.00              | 0.00     | 0.00                  | 0.00   | 0.00     | 1.00                    | 0.00  |
| MTF/Unscheduled                           | 359.00            |          |                       |        |          | 359.00                  | 0.00  |



COMPUTING CENTER USE IN DOLLARS BY COST CENTER (DECEMBER 20, 1991, THROUGH JANUARY 30, 1992)

| CC                     | CCNAME                        | IBM     | VAX      | CRAY | NETWORK | PERIPHERAL | CCTOTAL  |
|------------------------|-------------------------------|---------|----------|------|---------|------------|----------|
| ADVANCED PHOTON SOURCE |                               |         |          |      |         |            |          |
| 130                    |                               | \$108   | \$0      | \$0  | \$315   | \$4        | \$428    |
| 131                    | ACCELERATOR SYS DIV           | \$129   | \$1      | \$0  | \$17    | \$141      | \$289    |
| 132                    | EXP FACIL DIV                 | \$107   | \$0      | \$0  | \$4     | \$119      | \$230    |
| 133                    | APS PROJECT OFFICE            | \$0     | \$0      | \$0  | \$6     | \$0        | \$6      |
| 272                    | ADVANCED PHOTON SOURCE        | \$103   | \$33     | \$0  | \$90    | \$31       | \$256    |
| 341                    | APS ACCELERATOR PHYSICS       | \$356   | \$6,968  | \$0  | \$61    | \$109      | \$7,495  |
| 342                    | APS DIAGNOSTICS               | \$4     | \$22     | \$0  | \$0     | \$129      | \$155    |
| 343                    | APS LINAC                     | \$0     | \$157    | \$0  | \$18    | \$0        | \$175    |
| 344                    | APS RF                        | \$7     | \$31     | \$0  | \$2     | \$3        | \$43     |
| 345                    | APS VACUUM/MECHANICAL ENG.    | \$13    | \$4,429  | \$1  | \$138   | \$772      | \$5,353  |
| 347                    | APS CONTROLS                  | \$73    | \$45     | \$0  | \$1     | \$8        | \$127    |
| 348                    | APS MAGNETS                   | \$81    | \$62     | \$0  | \$110   | \$5        | \$258    |
| 349                    | APS POWER SUPPLIES            | \$40    | \$0      | \$0  | \$1     | \$0        | \$41     |
| 350                    | APS DIVISION MANAGEMENT       | \$0     | \$0      | \$0  | \$0     | \$0        | \$0      |
| 351                    | APS INSERTION DEVICES         | \$68    | \$1,363  | \$0  | \$63    | \$237      | \$1,732  |
| 352                    | APS ENGINEERED SYSTEMS        | \$43    | \$1,730  | \$0  | \$89    | \$346      | \$2,208  |
| 353                    | APS BEAM LINE INSTRUMENTATION | \$32    | \$1,229  | \$0  | \$389   | \$703      | \$2,354  |
| 360                    | APS CONVENTIONAL FACILITIES   | \$28    | \$0      | \$0  | \$7     | \$1        | \$36     |
| 361                    | APS PROJECT DIRECTION         | \$67    | \$10     | \$0  | \$7     | \$20       | \$104    |
| 362                    | APS MANAGEMENT GENERAL        | \$20    | \$0      | \$0  | \$0     | \$18       | \$38     |
| SUBTOTAL               |                               | \$1,279 | \$16,080 | \$2  | \$1,320 | \$2,649    | \$21,330 |

ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH

|          |                              |         |          |          |         |          |          |
|----------|------------------------------|---------|----------|----------|---------|----------|----------|
| 110      | BIO & MED RES DIV            | \$863   | \$937    | \$128    | \$1,226 | \$1,072  | \$4,226  |
| 125      | TECHNOLOGY TRANSFER CENTER   | \$111   | \$11     | \$0      | \$10    | \$120    | \$252    |
| 149      | ENVIRONMENTAL RESEARCH DIV   | \$2,425 | \$884    | \$131    | \$1,012 | \$1,093  | \$5,545  |
| 155      | ENERGY SYSTEMS DIVISION      | \$1,922 | \$5,106  | \$1,074  | \$734   | \$981    | \$9,817  |
| 165      | ENV ASSESS & INFO SCI DIV    | \$3,646 | \$8,224  | \$10,325 | \$415   | \$3,586  | \$26,196 |
| 246      | ES-NAT'L ENERGY SOFTWARE CTR | \$35    | \$0      | \$0      | \$155   | \$-1,031 | \$-842   |
| 274      | ENER/ENV/BIO RES PROG ADM    | \$147   | \$0      | \$0      | \$4     | \$182    | \$334    |
| SUBTOTAL |                              | \$9,148 | \$15,162 | \$11,658 | \$3,555 | \$6,003  | \$45,527 |

ENGINEERING RESEARCH

|          |                                 |          |          |          |          |          |           |
|----------|---------------------------------|----------|----------|----------|----------|----------|-----------|
| 102      | EBR-II PROJECT-ANL WEST         | \$3,083  | \$25     | \$437    | \$2,154  | \$181    | \$5,881   |
| 104      | FUELS AND PROCESSES DIVISION    | \$1,072  | \$300    | \$41     | \$445    | \$124    | \$1,980   |
| 107      | CHEMICAL TECHNOLOGY DIVISION    | \$666    | \$301    | \$0      | \$536    | \$485    | \$1,988   |
| 112      | REACTOR ENGINEERING DIVISION    | \$7,514  | \$2,064  | \$2,193  | \$2,203  | \$2,833  | \$16,806  |
| 114      | MATLS & COMP TECH DIV           | \$5,253  | \$6,102  | \$922    | \$979    | \$2,252  | \$15,508  |
| 115      | ENGINEERING PHYSICS DIVISION    | \$2,825  | \$2,762  | \$1,722  | \$1,587  | \$1,601  | \$10,498  |
| 116      | REACTOR ANALYSIS DIVISION       | \$36,435 | \$9,740  | \$43,290 | \$12,562 | \$12,091 | \$114,217 |
| 117      | APPLIED PHYSICS-ANL WEST        | \$1,371  | \$158    | \$1,873  | \$234    | \$388    | \$4,425   |
| 118      | FUEL CYCLE DIVISION             | \$1,824  | \$3,721  | \$5      | \$256    | \$455    | \$6,261   |
| 171      | ENG RES PROG DIR                | \$8      | \$0      | \$0      | \$0      | \$108    | \$116     |
| 197      | SPECIAL PROJECTS OFFICE         | \$338    | \$2      | \$0      | \$24     | \$154    | \$518     |
| 211      | ENGR PHYS DIV - DESIGN ENGR     | \$17     | \$0      | \$0      | \$4      | \$105    | \$125     |
| 269      | ANALYTICAL CHEMISTRY LABORATORY | \$100    | \$34     | \$0      | \$17     | \$201    | \$351     |
| 271      | ENG RES PROG ADMIN              | \$210    | \$0      | \$0      | \$2      | \$255    | \$467     |
| SUBTOTAL |                                 | \$60,715 | \$25,609 | \$50,484 | \$21,101 | \$21,234 | \$179,142 |

PHYSICAL RESEARCH

|          |                                 |         |          |          |         |          |          |
|----------|---------------------------------|---------|----------|----------|---------|----------|----------|
| 105      | MATERIALS SCIENCE DIVISION      | \$682   | \$3,926  | \$485    | \$1,125 | \$868    | \$7,086  |
| 109      | PHYSICS DIV                     | \$2,494 | \$1,135  | \$33     | \$1,044 | \$672    | \$5,379  |
| 120      | CHEMISTRY DIV                   | \$1,447 | \$22,986 | \$2,021  | \$280   | \$827    | \$27,562 |
| 136      | INT PULSE NEUT SOURCE PROG      | \$185   | \$513    | \$90     | \$316   | \$337    | \$1,442  |
| 137      | HIGH ENERGY PHYSICS DIV         | \$493   | \$12,036 | \$4,961  | \$1,004 | \$946    | \$19,440 |
| 139      | DIV OF EDUCATIONAL PROGRAMS     | \$230   | \$3      | \$0      | \$149   | \$158    | \$540    |
| 145      | MATHAMATICS & COMPUTER SCI DIV  | \$138   | \$7      | \$272    | \$26    | \$4,949  | \$5,463  |
| 146      | CTD DIV - SCI APPL & RES        | \$89    | \$1,115  | \$2,199  | \$210   | \$2,010  | \$5,623  |
| 273      | PHYSICAL RESEARCH PROGRAM ADMIN | \$80    | \$10     | \$0      | \$51    | \$112    | \$253    |
| SUBTOTAL |                                 | \$5,859 | \$41,782 | \$10,062 | \$4,205 | \$10,879 | \$72,788 |

EXTERNAL

|          |                                   |          |       |         |         |         |          |
|----------|-----------------------------------|----------|-------|---------|---------|---------|----------|
| 751      | FERMI NATIONAL LABORATORY         | \$854    | \$0   | \$0     | \$1,083 | \$696   | \$2,632  |
| 752      | NAVY                              | \$10,860 | \$0   | \$0     | \$1,057 | \$5,314 | \$17,231 |
| 753      | MORGANTOWN ENERGY TECH CENTER     | \$8      | \$0   | \$0     | \$0     | \$0     | \$8      |
| 754      | DEPARTMENT OF ENERGY AT ANL       | \$4      | \$11  | \$0     | \$15    | \$0     | \$29     |
| 760      | ABBOTT LABORATORIES               | \$4      | \$130 | \$2,911 | \$36    | \$0     | \$3,082  |
| 763      | GENERAL ELECTRIC COMPANY          | \$0      | \$1   | \$0     | \$0     | \$0     | \$1      |
| 766      | BECHTEL NATIONAL, INC.            | \$0      | \$97  | \$14    | \$0     | \$1     | \$112    |
| 777      | UNIVERSITY OF CHICAGO AT ANL      | \$21     | \$0   | \$0     | \$152   | \$0     | \$173    |
| 778      | ARGONNE CREDIT UNION              | \$8      | \$0   | \$0     | \$0     | \$0     | \$8      |
| 779      | UNIVERSITY OF ILLINOIS AT CHICAGO | \$8      | \$0   | \$0     | \$0     | \$0     | \$8      |
| 780      | NEW BRUNSWICK LABORATORY          | \$17     | \$0   | \$0     | \$0     | \$0     | \$17     |
| 781      | STATE OF ILL. DEPT. MENTAL HEALTH | \$0      | \$0   | \$0     | \$0     | \$6     | \$6      |
| 782      | PACKER ENGINEERING                | \$4      | \$32  | \$0     | \$0     | \$0     | \$36     |
| 783      | WEST VALLEY NUCLEAR SERVICES CO   | \$100    | \$0   | \$0     | \$0     | \$0     | \$100    |
| 784      | SSC LABORATORY                    | \$0      | \$71  | \$235   | \$0     | \$0     | \$306    |
| 787      | ILLINOIS INSTITUTE OF TECHNOLOGY  | \$0      | \$111 | \$0     | \$0     | \$0     | \$111    |
| 790      | GRUMANN AEROSPACE                 | \$0      | \$0   | \$0     | \$0     | \$10    | \$10     |
| 791      | LAWRENCE LIVERMORE                | \$0      | \$0   | \$0     | \$1,625 | \$0     | \$1,625  |
| SUBTOTAL |                                   | \$11,890 | \$452 | \$3,161 | \$3,967 | \$6,028 | \$25,498 |

| CC       | CCNAME                               | IBM       | VAX        | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|----------|--------------------------------------|-----------|------------|----------|----------|------------|-----------|
|          |                                      |           | OPERATIONS |          |          |            |           |
| 143      | SUPP SERV DIV - ELEC DEPT            | \$215     | \$6        | \$0      | \$348    | \$395      | \$964     |
| 148      | HUMAN RESOURCES-MEDICAL DEPT         | \$2,870   | \$0        | \$0      | \$167    | \$559      | \$3,596   |
| 150      | SUPPORT SERV DIV - SPEC MATLS        | \$220     | \$0        | \$0      | \$22     | \$146      | \$389     |
| 161      | IPD-TECH INFO SERV                   | \$436     | \$31,340   | \$0      | \$6,036  | \$1,183    | \$38,996  |
| 201      | OFFICE OF THE DIRECTOR               | \$753     | \$0        | \$0      | \$213    | \$164      | \$1,131   |
| 202      | OFC OF CHIEF OPER OFCR               | \$20      | \$0        | \$0      | \$112    | \$101      | \$233     |
| 210      | SUPP SERV DIV - CENT SHOPS           | \$399     | \$0        | \$0      | \$74     | \$557      | \$1,030   |
| 216      | SUPPORT SERVICES DIVISION            | \$104     | \$0        | \$0      | \$43     | \$108      | \$255     |
| 222      | PLANT FAC & SERV-LODGING FAC         | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 232      | SUPPORT SERV DIV - SECURITY          | \$405     | \$0        | \$0      | \$1      | \$223      | \$628     |
| 234      | ESH DIV-HEALTH PHY                   | \$376     | \$756      | \$0      | \$663    | \$387      | \$2,182   |
| 235      | ESH DIV                              | \$1,201   | \$39       | \$0      | \$202    | \$618      | \$2,060   |
| 236      | ESH DIV-FIRE DEPT                    | \$7       | \$0        | \$0      | \$0      | \$101      | \$108     |
| 245      | COMPUTING AND TELECOM DIV            | \$33,437  | \$0        | \$0      | \$0      | \$0        | \$33,437  |
| 247      | COMP & TEL DIV - COM SERV            | \$4,369   | \$0        | \$0      | \$5,051  | \$4,263    | \$42,751  |
| 260      | IPD-MEDIA SERV DEPT                  | \$159     | \$798      | \$0      | \$690    | \$1,411    | \$6,471   |
| 265      | IPD-TECH COM SERV                    | \$7       | \$0        | \$0      | \$42     | \$219      | \$1,218   |
| 275      | OFFICE OF PUBLIC AFFAIRS             | \$855     | \$0        | \$0      | \$1      | \$0        | \$9       |
| 276      | OFC PUB AF - MOTN PIC UNIT           | \$50      | \$0        | \$0      | \$76     | \$191      | \$1,124   |
| 288      | INF & PUBL DIV                       | \$161     | \$616      | \$0      | \$0      | \$14       | \$64      |
| 296      | TELECOM COST/RECOVERY                | \$0       | \$0        | \$0      | \$16     | \$155      | \$949     |
| 315      | SUPP SERV DIV-MATLS & SERV           | \$4,612   | \$0        | \$0      | \$1,239  | \$646      | \$6,497   |
| 316      | PLANT FAC & SERV-VEH MAINT           | \$0       | \$0        | \$0      | \$0      | \$191      | \$191     |
| 317      | PLANT FAC & SERV-DRIVE&RIG SERV      | \$43      | \$0        | \$0      | \$2      | \$107      | \$153     |
| 319      | SUPP SERV DIV-TRAVEL OFC             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 322      | SUPP SERV DIV-PROCUREMENT            | \$52      | \$1        | \$0      | \$9      | \$102      | \$164     |
| 333      | ENVIR SAFE HEALTH & QA OVERSIGH      | \$745     | \$61       | \$0      | \$104    | \$650      | \$1,560   |
| 336      | SUPP SERV DIV - INSPECTION           | \$13      | \$2        | \$0      | \$0      | \$1        | \$16      |
| 400      | OFC OF CHIEF FIN OFFICER             | \$63,699  | \$0        | \$0      | \$3,345  | \$11,907   | \$78,950  |
| 401      | ACCOUNTING                           | \$0       | \$0        | \$0      | \$24     | \$0        | \$24      |
| 403      | BUDGET OFFICE                        | \$0       | \$0        | \$0      | \$2      | \$0        | \$2       |
| 410      | HUMAN RESOURCES DEPARTMENT           | \$29,403  | \$0        | \$0      | \$1,801  | \$3,221    | \$34,425  |
| 412      | AFFIRM ACTION PROGRAM                | \$77      | \$0        | \$0      | \$45     | \$100      | \$223     |
| 501      | PLANT FAC & SERV-BLDG MAINT          | \$965     | \$0        | \$0      | \$180    | \$193      | \$1,337   |
| 502      | PLANT FAC & SERV-INSTALLATIONS       | \$22      | \$0        | \$0      | \$2      | \$100      | \$124     |
| 503      | PLANT FAC & SERV-GROUNDS             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 504      | PLANT FAC & SERV-CUSTODIAL           | \$4       | \$0        | \$0      | \$0      | \$100      | \$104     |
| 505      | PLANT FAC & SERV-WASTE MGMT OP       | \$69      | \$0        | \$0      | \$8      | \$100      | \$267     |
| 506      | PLANT FAC & SERV-PLANT MGR OFC       | \$626     | \$0        | \$0      | \$32     | \$302      | \$960     |
| 509      | PLANT FAC & SERV-OPERATION DIN       | \$0       | \$0        | \$0      | \$2      | \$0        | \$2       |
| 510      | PLANT FAC & SERV-UTILITY SYST        | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 512      | PLANT FAC & SERV-FAC PLNG/ENG        | \$1,406   | \$71       | \$0      | \$48     | \$258      | \$1,783   |
| 530      | SITE MGRS OFC-ANL WEST               | \$65      | \$0        | \$0      | \$0      | \$102      | \$167     |
| 531      | HUMAN RESOURCES-AW                   | \$220     | \$0        | \$0      | \$47     | \$100      | \$367     |
| 532      | SPECIAL MATLS-ANL WEST               | \$850     | \$0        | \$0      | \$178    | \$294      | \$1,322   |
| 533      | ACCOUNTING-ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 534      | PURCHASING-ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 535      | SECURITY - ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 536      | ENVIRONMENT, SAFETY & HEALTH-AW      | \$8       | \$0        | \$0      | \$0      | \$100      | \$108     |
| 537      | INFORMATION SERVICE-ANL WEST         | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 538      | SUPPLY-AW                            | \$117     | \$0        | \$0      | \$7      | \$143      | \$267     |
| 550      | COMPUTER APPL & SERV - ANL-W         | \$128     | \$1        | \$0      | \$19     | \$102      | \$249     |
| 554      | MACHINE SHOP-ANL WEST                | \$20      | \$0        | \$0      | \$2      | \$100      | \$122     |
| 556      | SITE ENGRG-ANL WEST                  | \$78      | \$0        | \$0      | \$7      | \$100      | \$185     |
| 557      | PLANT SERVICES-AW-SERVICE REQ        | \$156     | \$1        | \$0      | \$11     | \$100      | \$268     |
| 558      | PLANT SERVICES-AW-FUNCTION           | \$4       | \$0        | \$0      | \$0      | \$0        | \$4       |
| 561      | OFC OF QUALITY ASSURANCE - AW        | \$4       | \$0        | \$0      | \$0      | \$102      | \$106     |
| 570      | ENVIRON HEALTH SAFETY QUAL ASSURANCE | \$0       | \$0        | \$0      | \$0      | \$3        | \$3       |
| SUBTOTAL |                                      | \$149,429 | \$33,694   | \$0      | \$21,028 | \$30,821   | \$234,973 |
| TOTAL    |                                      | \$238,319 | \$132,780  | \$75,367 | \$55,177 | \$77,614   | \$579,257 |

## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance                                                     | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|--------------------------------------------------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center                                                      | 2-5421                                | 8-252-5421        | 252-5421                   |
| Current System Status Recorded Message                                         | 2-5466                                | 8-252-5466        | 252-5466                   |
| User Consultant                                                                | 2-5405                                | 8-252-5405        | 252-5405                   |
| Documentation                                                                  | 2-5405                                | 8-252-5405        | 252-5405                   |
| Computer Operations                                                            | 2-5421                                | 8-252-5421        | 252-5421                   |
| VM/SP Operator                                                                 | 2-8442                                | 8-252-8442        | 252-8442                   |
| RADS Maintenance                                                               | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service                                                      | 1-800-332-1478 (only within Illinois) |                   |                            |
| CICS, CMS, Wylbur, and TSO Interactive Computing Services                      |                                       |                   |                            |
| IBM 3270 Protocol Converter                                                    |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-3270                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-3270                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-3219                   |
| X.25 Terminal Multiplexor                                                      |                                       |                   |                            |
| 300 to 19.2K Bits Per Second(Onsite)                                           | 2-2525                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-2525                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-2519                   |
| IBM 3174 Cluster Controller                                                    | 2-3174                                | n.a.              | n.a.                       |
| 1,200 Bits Per Second Full-Duplex<br>(Bell 212 and Hayes Compatible Modems)    | 2-2212                                | n.a.              | 252-2212                   |
| 1,200 Bits Per Second Full-Duplex<br>(Vadic 3400 Compatible Modems)            | 2-7612                                | n.a.              | 252-7612                   |
| 300 Bits Per Second                                                            | 2-7603*                               | n.a.              | 252-7603*                  |
| * When using a 300 bits per second modem, you must use a capital "P" to logon. |                                       |                   |                            |
| Batch Remote Job Entry Service                                                 |                                       |                   |                            |
| 2,000 or 2,400 Bits Per Second<br>(Bell 201A and 201C Compatible Modems)       | 2-7989                                | n.a.              | 252-7989                   |
| 4,800 Bits Per Second<br>(Bell 208B Compatible Modems)                         | 2-7573                                | n.a.              | 252-7573                   |
| Central DEC VAX Cluster                                                        |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-8700                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-8700                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-8745                   |
| Argonne TCP/IP Network                                                         |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-5588                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-5588                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-4726                   |
| Argonne ESnet Dial-Up                                                          |                                       |                   |                            |
| 300 to 19.2K Bits Per Second                                                   | 2-7920                                | n.a.              | 252-7920                   |

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

|                       | MVS JES3<br>Batch, UNICOS<br>Wylbur,<br>and TSO | VM/XA                        | VMS                          |
|-----------------------|-------------------------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00                    | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                                     | 00:00-24:00                  | 00:00-24:00                  |

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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## COMPUTING CENTER CLASS

The Computing and Telecommunications Division (CTD) is offering one class. There is a \$50 charge for this class. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### INTRODUCTION TO UNIX

- Goals:** To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.
- Length of Class:** Three 3-hour lectures and three 1-hour labs
- Dates and Time:** March 24, 25, and 26, 1992 (Tuesday, Wednesday, and Thursday)  
9:00 a.m. to noon (Lecture)  
One-hour Lab each afternoon
- Location:** Building 221, Room A-216 (Lecture)  
Building 221, Room A-261 (Lab)
- Suggested Reading:** *A Practical Guide to the Unix System* (0-8053-0243-3)
- Instructors:** Pete Bertoncini  
Steve Karlovsky

### COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

#### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

| Course Name | Course Title                                |
|-------------|---------------------------------------------|
| SLFTEACH    | Introduction and Advanced Concepts of Xedit |

#### DEC CBT Courses on the Central VAX 6410 (node ANLCV1)

(Enter RUN "course name" at the DCL level.)

|         |                                               |
|---------|-----------------------------------------------|
| VMSCAI  | Introduction to VAX/VMS                       |
| LSECAI  | Introduction to the Language Sensitive Editor |
| EVECAI  | Introduction to the Extensible VAX Editor     |
| DTRCAI  | Datatrieve for Users                          |
| DTRPCAI | Datatrieve for Programmers                    |



# ARGONNE COMPUTING NEWSLETTER

**Argonne National Laboratory Computing and Telecommunications Division**

VOLUME 23

NUMBER 4

APRIL 1992

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ESH

## "First Among Equals"

Only you can do it!



# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

|                                             |                           | Room | Phone  | Electronic Mail Address        |
|---------------------------------------------|---------------------------|------|--------|--------------------------------|
| Division Director                           | Mike Boxberger (Acting)   | A251 | 2-7155 | B34540 AT ANLVM                |
| Computer Protection Program Manager         | Jean Troyer               | A237 | 2-7440 | B18216 AT ANLVM                |
| Computing and Telecommunications Operations | Larry Amiot               | B243 | 2-5432 | B10523 AT ANLVM                |
| Computer Network                            | Bob McMahon               | B239 | 2-7270 | B17385 AT ANLVM                |
| Data Communications                         | Linda Winkler             | B251 | 2-7236 | B32357 AT ANLVM                |
| Service Engineering                         | Paul Phillips             | D118 | 2-4343 | B36679 AT ANLVM                |
| Network and Computer Operations             | Gary Schlesselman         | A113 | 2-5437 | B09819 AT ANLVM                |
| Day and Weekend Operation                   | Bob Bilshausen            | A134 | 2-5421 |                                |
| Document Distribution Counter               |                           | A134 |        |                                |
| Evening and Overnight Operation             | Mike Monczynski           | A134 | 2-5421 |                                |
| Tape Librarian                              | Sandra Vasko              | A134 | 2-7681 | B18669 AT ANLVM                |
| Trouble Reporting                           |                           | A134 | 2-5421 | NOC AT ANL.GOV                 |
| Systems Programming                         | John Volmer (Acting)      | B211 | 2-5449 | B32831 AT ACHILLES.CTD.ANL.GOV |
| Telephone Services                          | Allen Winter              | B247 | 2-2764 | B07059 AT ANLVM                |
| User Services                               | Fred Moszur               | A121 | 2-7419 | B27564 AT ANLVM                |
| Computer Use Authorizations                 | Fran Carnaghi             | A147 | 2-5425 | B27596 AT ANLVM                |
| Consultants                                 |                           | A139 | 2-5405 | CONSULT AT ANLVM               |
| Documentation Advice                        |                           | A139 | 2-5405 | CONSULT AT ANLVM               |
| Education and Assistance                    | Pete Bertonecini (Acting) | E101 | 2-4827 | B15013 AT ANLVM                |
| Management Information Systems              | Diane O'Brien             | B151 | 2-7167 | B26424 AT ANLVM                |
| Financial Systems                           | Nick Moore                | D239 | 2-8075 | B31048 AT ANLVM                |
| Human Resource Systems                      | Bob Hischier              | B147 | 2-7272 | B22639 AT ANLVM                |
| Information and Production Services         | Miriam Bretscher          | B139 | 2-7252 | B26187 AT ANLVM                |
| Materials and Plant Systems                 | Rich Slade                | B159 | 2-7329 | B32848 AT ANLVM                |
| Planning, Finance, and Administration       | Mike Boxberger            | A245 | 2-5638 | B34540 AT ANLVM                |
| Scientific Applications and Research        | Charles Mueller           | A231 | 2-7153 | B11284 AT ANLVM                |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 4/490, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCose at 708-252-5415.

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## COMPUTING COMMENTS

### COMPUTING CLASSES SCHEDULED FOR APRIL AND MAY 1992

During April and May 1992, CTD will offer three classes and four labs. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*PC Hard Disk Survival Techniques* (one 1-hour session) is for users who want to learn about the basic hard-disk properties of DOS-based computers and to review commercially available software that assists even the novice user with diagnostics, maintenance, and repairs. There is a \$25 charge for this class.

*Using Your IBM Personal Computer for Telecommunications* (one 2-hour session) assists Argonne personnel in understanding and applying basic data communication practices to Laboratory-specific equipment (such as Asynchronous Communication Interfaces [ACIs], Asynchronous Data Interfaces [ADIs], and voice/data lines). The class will demonstrate commercial packages (for example, Procomm Plus and Crosstalk for Windows) and public domain communication software (for example, Kermit) for the personal computer. There is a \$25 charge for this class.

*Debugging Fortran* (one 1-hour introductory lecture and four 3-hour labs) introduces you to modern program debugging tools available for the Cray UNICOS, Sun Unix, VAX/VMS, and IBM CMS operating systems. The introductory lecture will review the tools available for each of these systems. We will demonstrate the use of the CDBX symbolic debugger with the X Window interface on the Cray, the Xdbx X Window debugger on the Sun, the VMS symbolic debugger on the VAX, and the IBM VS Fortran interactive debugger in CMS. The 3-hour lab for each of the operating systems will allow you to use these tools on your preferred system. You should sign up for labs for each of the operating systems in which you will be developing and debugging programs.

## COMPUTER PROTECTION

### THE SEARCH FOR MICHELANGELO VIRUS

The much-publicized Michelangelo virus did no damage at ANL, although it was found on two computers in one office at ANL. The IBM PC anti-virus team members were able to use the *Data Physician Plus!* package (distributed widely within ANL) to remove the virus without adversely affecting the data on the computer hard disk. No other cases were reported.

The publicity generated by the press over Michelangelo and the efforts of many within the Laboratory to publicize the availability of *Data Physician Plus!* to all Laboratory users of IBM PC-compatible computers resulted in reports of two other cases of viral infection. Both cases involved the Marijuana virus; both computers were successfully cleaned by using *Data Physician Plus!*

If you do not have a copy of *Data Physician Plus!*, check with your Computer Protection Program Representative to see who in your organization is a member of the IBM PC anti-virus team responsible for distributing the copies in your division.

If you have access to the disk operating system (DOS) Public Volume maintained by CTD (see "Public DOS File System Available" in the March 1992 *Newsletter*), you can run or download a copy from there or can obtain a copy at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Remember that the license is for DOE-owned computers only. Do not distribute copies to those not doing ANL or DOE work.



## CMS NEWS

### **NAG, NAG2, AND IMSL TXTLIBS MOVED TO SEPARATE MINIDISKS IN CMS**

CTD will move the NAG and IMSL TXTLIBs from the Y-disk to separate minidisks so that CTD can identify who uses these TXTLIBs. This information will tell us whether we should continue to update these libraries. We will place two execs, NAG and IMSL, on the Y-disk. These execs will link and access the corresponding minidisk, which will allow access to the TXTLIBs.

Users will have to execute the appropriate exec before linking or loading a program that requires one of these TXTLIBs and before executing a program that was compiled with one of these TXTLIBs. If you use one of these TXTLIBs without executing the appropriate exec, a message similar to the following will appear:

```
DMSGLOB002W File xxxx TXTLIB not found
```

where "xxxx" is the name of the TXTLIB. The new execs and minidisks will be available by April 1, 1992, and CTD will remove the TXTLIBs from the Y-disk on April 20, 1992. If there are any difficulties, contact the User Services consultants at extension 2-5405.

## GRAPHICS NEWS

### **MATRIX SLIDE CAMERA NOW ACCEPTS POSTSCRIPT FROM APPLE MACINTOSH, IBM PERSONAL COMPUTER, AND UNIX WORKSTATIONS**

CTD has implemented a new PostScript capability on the existing Agfa Matrix 35mm slide camera. The camera is now accessible via the Laboratory-wide Ethernet network. From April 1 through April 30, 1992, a full-time production test of this new capability will take place. At that time, if the production test is successful, CTD will produce all slides by using the PostScript capability only. To encourage users to test this capability, reasonable quantities of slides will be free during the test.

Table 1 and Table 2 (at the back of this *Newsletter*) indicate how to obtain color 35mm slides by sending PostScript output files to the Matrix camera from various computing environments. The new ANLSLIDE print queue on the Argonne central VAX cluster will receive the PostScript output files.

The new camera arrangement allows 35mm slides only. The volume of negatives and 8-by-10 inch transparencies is no longer sufficient to include these media in the new PostScript capability. The new Seiko transparency service announced in the February 1992 *Newsletter* provides an alternative to the 8-by-10 inch transparencies. Users still needing these media should contact the User Services consultants (extension 2-5405) to discuss their requirements.

The new PostScript capability has 35 Apple LaserWriter hardware fonts (see Table 3 at the back of this *Newsletter*). If your application uses these fonts, the PostScript output file should be considerably smaller, and the quality of the output could be improved when compared to bit-mapped or software fonts. Your application must include all other fonts and other PostScript definitions required to produce a slide in the PostScript output file.

The PostScript page description language assumes a white background for an output page. This may differ from what your current application produces. If 35mm slides with a black background are necessary, your application must designate a black background.

The page size defined in the application producing the PostScript output file should have dimensions of 7 1/3-by-11 inches. This page size preserves the 2-to-3 aspect ratio for a slide and completely fills the slide without any white border or loss of image.

Although any valid PostScript color scheme should produce acceptable slides, the Matrix camera is a red-green-blue (RGB) device, and performance is improved if the PostScript files contain RGB color definitions. Many applications produce RGB PostScript color definitions by default.

CTD will present a course to help users make better use of applications that are capable of producing PostScript output. We will announce the date of the course in a future *Newsletter*.



### **CALCOMP PLOTTER NOW ACCEPTS POSTSCRIPT FROM APPLE MACINTOSH, IBM PERSONAL COMPUTER, AND UNIX WORKSTATIONS**

CTD has implemented a new PostScript capability on the existing CalComp 5835 color electrostatic plotter. The plotter is now accessible via the Laboratory-wide Ethernet network. From April 1 through April 30, 1992, a full-time production test of this new capability will take place. At that time, if the production test is successful, CTD will produce all plots by using the PostScript capability only. To encourage users to test this capability, reasonable quantities of plots will be free during the test.

The new ANLCC and ANLCCBW print queues on the Argonne central VAX cluster will receive the PostScript output files for the CalComp plotter. Replacing ANLSLIDE in Table 1 and Table 2 (at the back of this *Newsletter*) with ANLCC or ANLCCBW will produce color and black-and-white plots, respectively, from PostScript output files sent to the plotter from several computing environments. The use of the ANLCC color plot queue significantly increases the plot time for any PostScript file. Thus, we recommend the use of the black-and-white ANLCCBW plot queue for plots not containing color and for previewing complex color plots.

The new PostScript capability has 35 Apple LaserWriter hardware fonts (see Table 3 at the back of this *Newsletter*). If your application uses these fonts, the PostScript output file should be considerably smaller, and the quality of the output could be improved when compared to bit-mapped or software fonts. Your application must include all other fonts and other PostScript definitions required to produce a plot in the PostScript output file. Use these fonts to enable the CalComp plotter to produce high-quality text in large font sizes.

Although any valid PostScript color scheme (that is, RGB, HSI, CMYK) should produce acceptable plots, the CalComp plotter is a cyan-magenta-yellow-black (CMYK) device. PostScript files that contain CMYK color definitions will produce the best results.

The CalComp plotter can produce large format plots that are limited to 34 inches in width and any reasonable length. CTD has produced several experimental System 7.0-compatible printer drivers for

the Apple Macintosh personal computer that allow many standard applications on the Apple Macintosh to produce D-size (22 by 34 inches), E-size (34 by 44 inches), double E-size (34 by 88 inches), and triple E-size (34 by 132 inches) plots. These large plot sizes eliminate the need to cut-and-paste numerous 8 1/2-by-11 inch pages to produce large black-and-white or color plots and engineering-sized drawings by using the Apple Macintosh computer.

You can download these printer drivers from the public disk directory on the CTD VAX cluster located in the public AlisaTalk zone. To install these drivers, copy them into the system folder on the target Apple Macintosh and select one by using the chooser.

CTD is investigating a new capability to produce large format drawings by using applications on an IBM Personal Computer or compatible. This new capability will allow A-size (8 1/2-by-11 inches) and B-size or tabloid-size (11-by-17 inches) plots produced on an IBM Personal Computer to be scaled or rotated or both to use more fully the large format of the CalComp plotter. We expect that D-size and E-size drawings will be possible by using this new capability with an IBM Personal Computer.

CTD will present a course to help users make better use of applications that are capable of producing PostScript output. We will announce the date of the course in a future *Newsletter*.

## **MANAGEMENT INFORMATION SYSTEMS**

### **HEWLETT-PACKARD 3000/70 IN PRODUCTION FOR AMPS**

On Monday, March 9, 1992, CTD placed a Hewlett-Packard (HP) 3000/70 in production. The replacement computer doubles the processing capacity and memory available on the minicomputer system dedicated to the Automated Materials Payables System (AMPS) and provides additional communications ports for administrative users of AMPS.

The purchase of the HP 3000/70 minicomputer is part of the strategy adopted by the Integrated Materials Management System project during

FY1991 (1) to use the existing AMPS application for several more years, (2) to develop a new online requisitioning and query capability for the IBM mainframe computers, and (3) to replace the Stock Tracker inventory system with a vendor-supplied, local area network-based application. The Administrative Data Processing Oversight Committee approved this strategy.

#### **INTEGRATED FINANCIAL SYSTEM--EXPERT QUERY AND EXPERTLINK UPDATE**

In March 1992, the Integrated Financial System (IFS) Project Team completed system testing of the Expert Query and Expertlink products acquired from the IFS vendor, Dun and Bradstreet Software. Readers may recall from previous *Newsletter* articles that these products enable users to perform online queries and personal computer (PC) downloads of financial data that is stored on the IBM mainframes.

Initially, the IFS Project Team was experiencing response time problems with both of these products, but the vendor has since fixed the software. Now standard queries and PC downloads run in a matter of seconds.

The project team has created some special files containing financial data and is looking for a few users who are prepared to be a test group. From this test group, we will be able to learn how the financial users around the Laboratory can best use these products.

To use Expert Query and Expertlink, you will need an IBM-compatible personal computer and either a modem or an Asynchronous Data Interface (ADI) to connect to the IBM mainframe. The project team will install all the necessary software on your PC and will give you instructions and documentation on using both of these products.

If you are interested in becoming a test user, contact Nick Moore at extension 2-8075 or Dave Skelley at extension 2-4361.

Further information about this project and about progress on all other phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the third working Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## **MVS NEWS**

### **MVS DATA BACK-UP IMPROVED**

The three categories of MVS disk storage are:

|                 |                                              |
|-----------------|----------------------------------------------|
| <b>PERM</b>     | datasets migrated after 60 days of non-use   |
| <b>TEMP</b>     | datasets scratched seven days after creation |
| <b>database</b> | contracted space, user managed               |

CTD backs up all MVS disks each Saturday to tapes that are reused after three weeks. Duplicate copies of these back-ups are stored in a "disaster vault" in a different building.

Recently, CTD began to back up the PERM volumes incrementally Monday through Thursday just before midnight. Only new files and files modified since the last back-up are copied to tape. These back-up tapes are reused the following week.

TEMP volumes are backed up daily early in the morning Sunday through Friday. These back-up tapes are reused the following week.

Each database volume is also backed up just before midnight Monday through Thursday. These back-up tapes are reused the following week.

### **DISK USAGE AND AVAILABILITY INFORMATION AVAILABLE ONLINE**

MVS users who create large permanent datasets need to select a disk volume that has enough free space. CTD runs a program daily that creates a snapshot of the usage of disk volumes. These results are stored in the file ANL1.MVS.DISK.USE, which you can view in Wylbur.

To view the daily snapshot of disk volumes, enter (in Wylbur):

```
USE $ANL1.MVS.DISK.USE
```

To send that information to an available printer, enter (in Wylbur):

```
DO PRINTPS
```

or

```
LIST OFFLINE
```

Figure 1 depicts a sample report.



|                                                          |                    |          |                 |            |          |          |                     |        |
|----------------------------------------------------------|--------------------|----------|-----------------|------------|----------|----------|---------------------|--------|
| 1 DATASET USAGE AT 0118 HOURS ON 11 MAR 92 (92.071)      |                    |          |                 |            |          |          |                     | PAGE 1 |
| 0 SELECTION CRITERIA (SATURATION) -- ALL MANAGED VOLUMES |                    |          |                 |            |          |          |                     |        |
| - SELECTION MODE IS NEW.                                 |                    |          |                 |            |          |          |                     |        |
| -ALLOWED ORGANIZATIONS ARE: VT PS PO IS UN DA VS         |                    |          |                 |            |          |          |                     |        |
| 1 DATASET USAGE AT 0118 HOURS ON 11 MAR 92 (92.071)      |                    |          |                 |            |          |          |                     | PAGE 2 |
| 0 VOLUME UTILIZATION (SATURATION) -- ALL MANAGED VOLUMES |                    |          |                 |            |          |          |                     |        |
| 0 --BYTES(MILLIONS)-- % OF SPACE                         |                    |          |                 |            |          |          |                     |        |
| STORAGE CLASS                                            | NUMBER OF DATASETS | CAPACITY | TRACKS SELECTED | SEL. %FREE | CAPACITY | SELECTED | % OF SPACE SELECTED |        |
| -----                                                    |                    |          |                 |            |          |          |                     |        |
| OVOLUMES                                                 |                    |          |                 |            |          |          |                     |        |
| -----                                                    |                    |          |                 |            |          |          |                     |        |
| TEM401                                                   | 265                | 13275    | 1251            | 122        | 630.24   | 59.39    | 9.42                |        |
| TEM402                                                   | 189                | 13275    | 5376            | 131        | 630.24   | 255.23   | 40.50               |        |
| PER701                                                   | 660                | 13275    | 10544           | 844        | 630.24   | 500.56   | 79.42               |        |
| PER702                                                   | 369                | 13275    | 12401           | 1560       | 630.24   | 588.73   | 93.41               |        |
| PER703                                                   | 567                | 13275    | 12425           | 2481       | 630.24   | 589.87   | 93.59               |        |
| PER704                                                   | 401                | 13275    | 10817           | 2187       | 630.24   | 513.52   | 81.48               |        |
| PER705                                                   | 417                | 13275    | 9189            | 1750       | 630.24   | 436.25   | 69.22               |        |
| PER706                                                   | 506                | 13275    | 12377           | 1938       | 630.24   | 587.59   | 93.23               |        |
| PER707                                                   | 377                | 13275    | 8482            | 1848       | 630.24   | 402.68   | 63.89               |        |
| PER708                                                   | 468                | 13275    | 11432           | 1218       | 630.24   | 542.73   | 86.11               |        |
| PER709                                                   | 844                | 13275    | 12144           | 2200       | 630.24   | 576.49   | 91.47               |        |
| PER710                                                   | 639                | 26550    | 16619           | 2786       | 1260.49  | 788.95   | 62.59               |        |
| PER711                                                   | 827                | 26550    | 19611           | 4586       | 1260.49  | 930.98   | 73.86               |        |
| PER712                                                   | 918                | 26550    | 19159           | 5094       | 1260.49  | 909.53   | 72.16               |        |
| PER713                                                   | 262                | 13275    | 10734           | 2008       | 630.24   | 509.60   | 80.86               |        |
| DAT801                                                   | 337                | 13275    | 10328           | 7502       | 630.24   | 490.30   | 77.80               |        |
| DAT802                                                   | 133                | 13275    | 8171            | 5677       | 630.24   | 387.92   | 61.55               |        |
| DAT803                                                   | 145                | 13275    | 9521            | 5203       | 630.24   | 452.01   | 71.72               |        |
| DAT804                                                   | 265                | 13275    | 11704           | 10570      | 630.24   | 555.63   | 88.16               |        |
| DAT805                                                   | 95                 | 13275    | 5387            | 4096       | 630.24   | 255.75   | 40.58               |        |
| DAT806                                                   | 141                | 13275    | 10570           | 10024      | 630.24   | 501.82   | 79.62               |        |
| DAT807                                                   | 70                 | 13275    | 10677           | 10624      | 630.24   | 506.90   | 80.43               |        |
| DAT808                                                   | 166                | 13275    | 9854            | 8636       | 630.24   | 467.82   | 74.23               |        |
| DAT809                                                   | 195                | 13275    | 10203           | 7791       | 630.24   | 484.38   | 76.86               |        |
| DAT810                                                   | 102                | 13275    | 7527            | 7407       | 630.24   | 357.35   | 56.70               |        |
| OGROUPS                                                  |                    |          |                 |            |          |          |                     |        |
| -----                                                    |                    |          |                 |            |          |          |                     |        |
| PERM                                                     | 7255               | 212400   | 165934          | 30500      | 10083.89 | 7877.46  | 78.12               |        |
| DATABASE                                                 | 1649               | 146025   | 93942           | 77530      | 6932.68  | 4459.88  | 64.33               |        |
| TEMP                                                     | 454                | 26550    | 6627            | 253        | 1260.49  | 314.62   | 24.96               |        |

Figure 1: Sample Report

To see an up-to-the-minute list of MVS disk space availability, enter (in Wylbur):

DO SPACE

## PERSONAL COMPUTING

### DISINFECTANT 2.6 AVAILABLE FOR APPLE MACINTOSH COMPUTERS

To protect your Apple Macintosh computer from viruses, Northwestern University has provided the Disinfectant 2.6 program. This program can detect and cure the following viruses: Scores, nVIR, INIT 29, ANTI, MacMag, WDEF, ZUC, MDEF, Frankie, CDEF, and MBDF.

Disinfectant 2.6 generates a status report and informs you of any virus. If you detect a virus, send a message to Jean Troyer at QuickMail address [jean\\_troyer@qmgate.anl.gov](mailto:jean_troyer@qmgate.anl.gov) or at extension 2-7440.

Disinfectant 2.6 comes with online help. This feature explains some of the program's advanced features, such as how to install Disinfectant on your hard disk.

Disinfectant 2.6 is available on the Apple Macintosh Public Volume in the Virus Abatement folder. If you do not have access to this volume, you can get Apple Macintosh *Disinfectant* v2.6 (a 3-1/2 inch diskette), which is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

### PUBLIC VOLUME AND PUBLIC PRINTERS MOVE TO NEW APPLE TALK ZONE

Argonne Apple Macintosh network managers performed a Laboratory-wide shutdown of the AppleTalk network on Wednesday, March 18, 1992. The shutdown gave CTD an opportunity to move the AppleShare volume named Public Volume and the public printers (for example, Media Services print-



ers) to a new zone. The new zone is Public AppleTalk. CTD has removed the obsolete zone Public AlisaTalk.

Prior to the shutdown, there had been two AppleTalk zones with names Public AlisaTalk and Public AppleTalk. The similarity of the names was often confusing to Apple Macintosh users trying to find Public Volume or a printer. The shutdown gave us a chance to move the AppleShare fileserver VAXserver (which serves Public Volume) and all printers in Public AlisaTalk to the zone Public AppleTalk. Fileserver VAXserver also serves several other AppleShare volumes across the network.

### **CTD EXPERIENCE WITH LAN MANAGER 2.0**

CTD's personal computer support staff of User Services has recently installed LAN Manager 2.0 on its 3Com servers. The installation was a part of a migration away from 3Com network operating systems to one based on Microsoft networking products.

Unlimited user versions of LAN Manager were installed on two 3Com 500 series servers with the following hardware configuration:

OS/2 V1.21  
386-based CPU  
16M RAM  
320M hard drive

The hard drives are formatted in two different file systems. A 30 megabyte C: partition formatted with the traditional File Allocation Table (FAT) holds the server system files, and the remaining 290 megabyte D: partition is formatted with the High Performance File System (HPFS) included in OS/2. This file system has a noticeably better performance than FAT-based partitions and normally contains user files and applications.

With the acquisition of the 3Com Value Pack for LAN Manager, the Xerox Network System (XNS) is the primary transport protocol. Therefore, connectivity to the old 3Com 3Share servers was maintained.

We encountered a few problems during the installation. The Print Manager from OS/2 V1.21 is necessary for print queue setup. Our OS/2 adminis-

tration workstation had V1.3, so certain files had to be downloaded from the server. There was a bug in the logon system that required a simple edit to a server's start-up file. Microsoft's free 30-day phone helped provide these solutions.

Since the arrival of LAN Manager, we have also installed Microsoft's Structured Query Language (SQL) server on one of the 3Com OS/2 servers, giving it a solid base for client-server applications.

When the upgrade to LAN Manager 2.1 takes place later this month, we will be able to test Pathworks and Novell connectivity, Transmission Control Protocol/Internet Protocol (TCP/IP) functionality, and the protocol stacking architecture for the LAN Manager 2.1 clients.

Direct questions about LAN Manager to Jim Regula at electronic mail address [regula@anl.gov](mailto:regula@anl.gov) or at extension 2-7622.

## **TELECOMMUNICATIONS NEWS**

### **NEW ADDITIONS TO BITNET UNIVERSITY NETWORK**

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,465 computers at over 1,250 sites. Since the last *Newsletter* article in February 1992, the following universities and organizations have joined BITnet:

Catholic University of Guayaquil--Ecuador  
Central Economic and Mathematical Institute--Moscow  
Delgado Community College--New Orleans  
Dicle (Tigris) University--Diyarbakir, Turkey  
Indiana Vocational Technical College--Indianapolis  
International Center for Tropical Agriculture--Bogota, Colombia  
Korean Air and Correspondence University--Seoul  
Ondokuz Mayis University--Samsun, Turkey  
Slovak Academy of Science--Severska, Czechoslovakia  
University of Lodz--Poland  
Ursinus College--Collegeville, Pennsylvania

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the CTD VAX cluster, or MVS Wylbur):

#### HELP BITNET NODES

### VAX/VMS NEWS

#### ARGONNE VAX CLUSTER UPGRADES TO X WINDOW MOTIF

On Monday, April 13, 1992, CTD will upgrade the X Window System on the Argonne central VAX cluster from DECwindows to DECwindows/Motif. The new version is based on the Massachusetts Institute of Technology X Window System X11 Release 4 (X11R4) and includes the Motif graphical user interface (GUI) from the Open Software Foundation (OSF). The Motif GUI has a different look and feel from the previous DECwindows GUI. Although the look of the user interface will change, the methods for running programs and for using the program from the windows will not change. You will not need to learn any new commands.

The Motif GUI is the second of the Open Systems standards implemented in VMS (the first was the X Window System itself). Motif and other components bring compatibility with other open systems (primarily Unix-style systems) and interoperability at various levels. The X Window System promotes interoperability at the user interface. We anticipate implementing the available components of the POSIX standard user and programming interface soon. POSIX promotes interoperability at the command line and system service or programming interface. We are evaluating the operating system upgrade (VMS 5.5) that we need to install prior to installing the POSIX system software. Also announced (but not yet available) is the Digital Equipment Corporation network/Open Systems Interconnection (DECnet/OSI), which promotes interoperability in networking. We currently have network interoperability as a result of implementing the Transmission Control Protocol/Internet Protocol (TCP/IP) networking in VMS at Argonne by using the MultiNet product.

### BITS & BYTES

#### RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### Computing and Telecommunications Documents

*The Argonne National Laboratory Study of the Transfer of Federal Computational Technology to Manufacturing Industry in the State of Michigan* (ANL/TM 498) describes a pilot study to develop, initiate the implementation, and document a process to identify computational technology capabilities resident within Argonne National Laboratory to small and medium-sized businesses in the State of Michigan.

#### SAS Documents

*Introducing the SAS System, Version 6, First Edition* (1-55544-449-0) describes the Statistical Analysis System (SAS), programming with the SAS Display Manager System, accessing data, managing data, presenting data in reports and with graphics, and building applications. This document supersedes the *SAS Introductory Guide* (0-917382-73-0).

*SAS/PC ETS Software, Release 6.04* provides tools for (1) time series extracting, data management, and plotting; (2) forecasting and time series extraction; (3) modeling and econometrics; and (4) financial reporting. For use on IBM or IBM-compatible personal computers. See the *SAS/ETS User's Guide, Version 6, First Edition* (1-55544-325-7).

*SAS/PC Graph Software, Release 6.04* provides tools for producing simple charts, maps, plots, and text slides. See *SAS/Graph Software: Introduction, Version 6, First Edition* (1-55544-395-8).



### University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (March 5, 1992) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of February 3, 1992.

### Other Vendor Documents

The *Data Physician Plus! Computer Virus Protection System* is a document and a diskette with two kinds of virus scanning programs: RESSCAN (a memory-resident program to scan for viruses) and VirHUNT (a disk-resident program to identify/remove viruses). You can use these programs with IBM PCs; IBM XT's; IBM AT's; or compatibles having a flexible disk drive, 256K available RAM, and DOS 2.0 or higher.

*Disinfectant v 2.6* is a 3 1/2-inch diskette for the Apple Macintosh computers that can detect and cure the following viruses: Scores, nVIR, INIT 29, ANTI, MacMag, WDEF, ZUC, MDEF, Frankie, CDEF, and MBDF.

The *Kermit-MS for IBM Personal Computer, Version 3.11* is a single-sided double-density 3 1/2-inch diskette for the IBM Personal Computer. This diskette contains the MS-DOS Kermit program and much-improved ANL-written scripts for accessing the IBM and VAX clusters. This diskette supersedes the *Kermit-MS for IBM Personal Computer, Version 3.01*.

The *Kermit-MS for IBM Personal Computer, Version 3.11* is a single-sided double-density 5 1/4-inch diskette for the IBM Personal Computer. This diskette contains the MS-DOS Kermit program and much-improved ANL-written scripts for accessing the IBM and VAX clusters. This diskette supersedes the *Kermit-MS for IBM Personal Computer, Version 3.01*.

## BULLETIN

### BULLETIN OF MARCH 6, 1992

#### SIGNIFICANT CHANGES INSTITUTED ON CRAY X-MP

The Computing Policy Committee has endorsed enhancements to the Cray computing environment at ANL. The following changes were effective March 5, 1992:

- CPU, memory and I/O rates for batch class u have been reduced to the existing class w rates.
- The availability of batch class z has been extended an additional two to four weeks at the rates previously announced.
- CPU, memory and I/O Rates for interactive processes have been reduced by 50 percent.
- The CPU time limit for interactive processes has been increased to 3 hours.
- Large memory jobs and interactive processes (up to 6 megawords) may now execute for up to 3 hours during the prime shift in addition to overnight and weekends.

The Cray X-MP rate structure is now as follows:

|                            | batch class |       |       |       |       | interactive process |
|----------------------------|-------------|-------|-------|-------|-------|---------------------|
|                            | u           | w     | x     | y     | z     |                     |
| Priority multipliers       | 1.0         | 1.0   | 0.5   | 0.3   | 0.15  | 1.0                 |
| CPU rates per hour         | \$500       | \$500 | \$250 | \$150 | \$75  | \$500               |
| CPU time limits (all jobs) | 3 hrs       | 3 hrs | 3 hrs | 3 hrs | 3 hrs | 3 hrs               |

CTD expects to continue to offer these rates as long as an increase in revenue and utilization can be demonstrated.

Users with questions or special requirements (such as CPU limits greater than 3 hours) should contact the CTD User Services consultants at extension 2-5405.



## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD MARCH 3, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:03 p.m.

**CICS Failures.** John Volmer (Computing and Telecommunications) reported on the failures experienced on the Customer Information Control System (CICS). The problem stemmed from some application software that did not adhere to the CICS conventions. Once the application was compiled with corrected compiler options, the problems went away.

**New MVS Disks Arrive.** John continued with a report on the new Amdahl disks that arrived and are to replace the older IBM disks. There are 35.3 gigabytes on 32 logical and physical volumes. The annual maintenance cost is about \$6,000 higher than the old disks, but they are newer and fail less frequently and more gracefully.

The new volumes are twice the size of the old volumes, so more than one of the old volume names will be mapped onto the new volumes. The mapping plan is PER701 and PER713 onto PER701, PER702 onto itself, PER703 and PER707 onto PER703, PER704 and PER708 onto PER704, PER705 and PER709 onto PER705, and PER706 and PER710 through PER712 onto themselves. This plan minimizes the number of volume name changes and keeps the old odd and even volume numbers on odd and even numbers, respectively. The DAT packs are also being converted with DAT801 through DAT803 on DAT821, DAT804 and DAT805 on DAT822, DAT806 and DAT807 on DAT823, DAT808 and DAT809 on DAT824, and DAT810 and DAT811 on DAT825.

The plan was to move the PER files in a gradual manner: uncataloging, moving, and then recataloging. Users asked for a quicker movement, since scripts will have to reflect the changes, and a clearer transition is necessary. The users also asked that references to unavailable volumes cause immediate JCL errors rather than waiting for the operator to mount the volume and then having the job killed when the operator responds that the volume is not available.

There is still no clear reason why the old IBM volumes failed. There does not appear to be any foreign material in the volumes. The new volumes are sealed so they should not be affected by the local environment.

**Status of Cray Rate Experiment.** John continued discussing the results of Cray usage and income after the institution of the class z multiplier. Usage was up slightly, but income was down slightly as much of class x moved to class z. CTD plans to continue with class z, but is also changing some of the other limits. Beginning on March 2, 1992, CTD raised the CPU limit for all classes to three hours and the memory limit to six megawords. Even if class z is removed (to be evaluated after another two weeks), these higher limits will remain in place.

**Status of the FDDI Proposal.** Tim Kuhfuss (Computing and Telecommunications) reported on the plans for installing the fiber optic cable. CTD has received guidance from the Management Council that the installation should be done over a three-year period. CTD had strongly recommended that it be done at one time, or at least by combining phases II and III into a single year.

The discussion among the CUG representatives centered on the need to get the Laboratory-wide Fiber Distributed Data Interface (FDDI) network installed as soon as possible, because the Ethernet backbone could not carry the load on it now and it would only grow worse in the next couple of years. Therefore, the CUG has recommended that the complete installation be reconsidered. The vote was without objection from the CUG representatives present.

Tim also suggested that those expecting to be connected in at least the phase I plan begin planning for the necessary interface hardware and a secure, locked location for the interface.

**Status of the Fractional T1 Link to Idaho.** Paul Phillips (Computing and Telecommunications) reported on plans to use the fractional T1 capabilities of the MCI link to enhance the connection between Idaho and Illinois. The fractional T1 links offer significant cost savings over dedicated 56 kilobits per second links. This link will allow upgrading in 64 kilobits per second increments if the need arises. Once the digital link is working and stable, existing dedicated links between ANL East and

West will be discontinued. CTD plans to go ahead with this installation and conversion.

**FTS 10 Digit Dialing Coming.** Allen Winter (Computing and Telecommunications) reported on the anticipated switch from the current 7-digit Federal Telecommunications System (FTS) dialing system to a 10-digit system based on commercial area codes and exchanges. Argonne originally timed the conversion to our new 252 prefix to coincide with the FTS 2000 10-digit dialing plan, but the FTS transition was postponed. The latest indications are that 10-digit dialing will begin on April 20, 1992, and both 7-digit and 10-digit dialing will work until May 20, 1992. After this date, the 10-digit dialing scheme will be necessary.

In response to a question about the availability of ISDN, Allen stated that Illinois Bell has no schedule to upgrade the local exchange to make ISDN possible.

Steve Karlovsky (Computing and Telecommunications) reported that Version 1.1 of the Numerical Algorithms Group (NAG) Fortran 90 compiler was received by CTD and would be put up on achilles immediately. Users interested in accessing it should contact Larry Rudsinski at extension 2-7219. The usage test concludes at the end of March 1992.

The Computer Users Group normally meets on the first Tuesday of each month at 3:00 p.m. in Building 221, Room A-216. Contact Pat Gamer (extension 2-4872) or Ken Miles (extension 2-3095) to be placed on the distribution list for meeting announcements or for additional information.

The CUG meeting adjourned at 4:08 p.m.

Ken Miles, CUG Secretary

**MINUTES OF MED USERS ALLIANCE (MEDUSA)  
MEETING HELD DECEMBER 13, 1991**

Chairperson Rick Fenner (Office of the Director-Advanced Photon Source) opened the meeting at 12:06 p.m. The first item of business was the selection of a new group name for the Graphic Arts Users Group. After a brief discussion, those in attendance voted that the new name (and acronym) be the MED Users Alliance (MEDUSA).

In answer to a question about the status of the new ANL site-wide copier contract, Joe Paulini (Media Services) explained that Procurement had decided--for several reasons--to reissue the Request for Proposal (RFP) early in 1992, with the aim of having the new contract in place by July 1, 1992. Meanwhile, Konica will keep its copiers and service people in place through June 30, 1992.

As background for the group's visit to the Media Services Department (MED) photo library, Joe Paulini provided a brief explanation of the new photo scanning system to be used in cataloging the library's holdings. While the software has already been activated, the copy stand and some other hardware items are yet to be received. Until then, the system is being used only in practice sessions. MED expects to begin actual inputting with the system by the end of January 1992.

Dave Hamrin (Technical Publications Services) mentioned that Technical Publications Services expects to provide cataloging help with both key words and indexing. In brief, the system uses a video camera that sends the image to a 12-inch optical laser disk, together with computer-stored cataloging information. Images are stored on the disk in analog form rather than digital, making searching much faster. Each disk can store as many as 54,000 images. A 27-inch color monitor allows the image to be previewed and properly positioned, while a PC-compatible computer with a dedicated database is linked to the system. Information can be entered about the image via the computer and can be placed on the image itself. Likewise, information already on the image can be placed in the database. Image searching is done through the same computer. Output (in color or black and white) can be printed on a Kodak XL-7700 continuous-tone printer via a TARGA board that digitizes the analog signal. A full-time person will be assigned to the cataloging project, which will ultimately encompass the library's 400,000 to 500,000 current photographs and other illustrations. Moreover, MED intends to use the equipment to provide site-wide service for divisions and programs with archiving needs for both images and text material.

Chuck Malefyt, MEDUSA Secretary



**MINUTES OF MACINTOSH USERS GROUP  
MEETING HELD MARCH 11, 1992**

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m. in Building 221, Room A-216.

Mike Maier (Media Services) demonstrated the Wacom Digitizing Tablet. The tablet (which has a resolution of about 0.001 inch) is connected through the serial port on the Apple Macintosh, runs under System 7.0, and uses a pressure-sensitive stylus. The stylus looks like an ordinary pen. It does not even have any wires coming from it. Mike uses the tablet mainly for drawing and illustration. He demonstrated its use in MacDraw II 1.1. Among other things, he showed how easy it is to put one's signature into the computer. Mike finds that the Wacom tablet (1) is more accurate than the older tablets, (2) is robust, and (3) works even if it is covered with cardboard. Software allows one either to get a one-to-one correspondence with pen movement and cursor movement on the screen or to have the tablet match the screen. The tablet comes in several sizes. The 12-inch by 12-inch tablet that Mike demonstrated, Model SD-42X, costs \$750. This tablet, which is the next to the smallest tablet that Wacom makes, takes up even more room than the mouse. However, it allows one to hold one's hand as if using a pen, which makes it more ergonomic for some people and thus may help to prevent Carpal Tunnel Syndrome.

Rodney East (Materials Science) showed us several other pointing devices for the Apple Macintosh, mainly trackballs. While Rodney personally hates trackballs, he uses the EMAC Silhouette at home because his wife likes it. Features to look for in a trackball are (1) a low profile (because a high trackball forces the hand up and can be uncomfortable or cause problems), (2) good clicking action, (3) a menu lock button (which often makes it easier to use), (4) a ball that does not skip or jump, and (5) an extra ADB port (so that one can still have their mouse attached, ready to use if they need it). One needs to see if the trackball works mainly with the fingers or thumbs and then to decide which way is more comfortable. Other trackballs shown included MacTrac 2.0 from MicroSpeed, Turbo Mouse ADB from Kensington, and Stingray from Costar.

Rodney also showed the device that he likes: Felix from Altra. It is a pad with a short joy-stick-like button in the middle. This button, although it

moves only within a one-inch square on the pad, enables the user to reach every location of the screen. The action of Felix is very similar to a mouse without requiring as much room on the desktop. Felix has a precision window mode for fine work. A window management feature allows one to get to the close box of a window or to the Apple menu quickly and easily.

In the end, Rodney concluded that there is still no perfect input device. However, he thought you could get used to most of the devices shown. The users were then allowed to try the input devices, because the best way to know if you would like a device is to try it.

A black-and-white liquid crystal display (LCD) screen from nView sitting on an overhead projector aided the demonstrations. The Chemical Technology Division (CMT) lent us this screen.

Dave Lifka (Computing and Telecommunications) reported that the Public Volume would not be in the Public AlisaTalk zone after 4:00 p.m. on Wednesday, March 18, 1992. It will be shifted to the Public AppleTalk zone at that time, and the Public AlisaTalk volume will then be removed from service. Dave also noted that (1) a new version of MacX Windows (Version 1.1.7) is now available as part of our site-wide license, (2) people are working on an AppleTalk dial-in number for Argonne, and (3) a full-day demonstration of Mathematica will occur soon. The Laboratory is considering Mathematica for a site-wide license.

Lee Wagar (Media Services) reported that she was able to solve her problems with the QuickMail server for Media Services by switching back to System 6.0.7 from System 7.0. Jackie Copple (Chemical Technology) reported that the QuickMail server for CMT has been running under System 7.0 without any problems.

In April 1992, BiMillennium Corporation will demonstrate HiQ, their numerical solution engine with graphics designed for the engineer and scientist. The date for the 11:00 a.m. meeting will be announced later. The people from BiMillennium will stay for the whole afternoon so that individuals can try HiQ and see how it can solve their specific problems. The Laboratory is considering HiQ for a site-wide license.



Dave Lifka agreed to demonstrate WAISStation at a future meeting. This program is generating a lot of excitement, because it gives the user access to file servers all across the country. MacTCP is necessary to use the program. Query II is its natural database language.

The Macintosh Users Group normally meets on the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Media Services), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at QuickMail address [lee\\_wagar@qmgate.anl.gov](mailto:lee_wagar@qmgate.anl.gov) or at extension 2-5603.

The meeting adjourned at 12:10 p.m.

Ralph Leonard, Macintosh Users Group Secretary

# WORKLOAD STATISTICS (JANUARY 31 THROUGH FEBRUARY 27, 1992)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,079              | 1,206        | 410                 |
| Wylbur      | 1,542              | 1,548        | 289                 |
| MVS TSO     | 57                 | 57           | 25                  |
| CICS        | 2,253              | 2,283        | 3                   |
| MVS Batch   | 2,253              | 2,283        | 592                 |
| VAX/VMS     | 664                | 668          | 195                 |
| Cray        | 355                | 359          | 98                  |
| Unix        | 150                | 121          | *                   |
| All Systems | 2,253              | 2,283        | 952                 |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |       |         |        | SESSION TIME (HRS) | CPU TIME (HRS) |
|--------------------|--------------------------------|-------|---------|--------|--------------------|----------------|
|                    | PRIME                          | NIGHT | WEEKEND | TOTAL  |                    |                |
| <b>INTERACTIVE</b> |                                |       |         |        |                    |                |
| CMS                | 10,925                         | 2,934 | 2,091   | 15,950 | 39,581.3           | 89.71          |
| Wylbur             | 5,457                          | 155   | 214     | 5,826  | 5,937.5            | 4.69           |
| MVS TSO            | 869                            | 7     | 12      | 888    | 761.8              | 2.81           |
| CICS               | *                              | *     | *       | *      | *                  | *              |
| VAX/VMS            | 12,780                         | 4,509 | 3,224   | 20,513 | 28,454.2           | 163.99         |
| Cray               | 984                            | 49    | 17      | 1,050  | 524.2              | 103.30         |
| <b>IBM BATCH</b>   |                                |       |         |        |                    |                |
| Class U            | 8,160                          | 1,664 | 986     | 10,810 | **                 | 25.33          |
| Class W            | 16,899                         | 3,384 | 675     | 20,958 | **                 | 187.78         |
| Class X            | 0                              | 822   | 17      | 839    | **                 | 34.85          |
| Class Y            | 0                              | 0     | 318     | 318    | **                 | 14.94          |
| Nonmain            | 15,754                         | 1,720 | 1,106   | 18,580 | **                 | 0.00           |
| Total              | 40,813                         | 7,590 | 3,102   | 51,505 | **                 | 262.90         |
| <b>CRAY BATCH</b>  |                                |       |         |        |                    |                |
| u                  | 984                            | 49    | 17      | 1,050  | **                 | 0.45           |
| w                  | 1,062                          | 3     | 42      | 1,107  | **                 | 2.14           |
| x                  | 3,246                          | 58    | 35      | 3,339  | **                 | 16.11          |
| y                  | 1,529                          | 177   | 113     | 1,819  | **                 | 28.70          |
| Total              | 6,821                          | 287   | 207     | 7,315  | **                 | 47.40          |
| <b>VMS BATCH</b>   |                                |       |         |        |                    |                |
| W BATCH            | 115                            | 382   | 81      | 578    | **                 | 18.86          |
| X BATCH            | 1                              | 59    | 17      | 77     | **                 | 62.16          |
| Y BATCH            | 0                              | 0     | 0       | 0      | **                 | 0.00           |
| Total              | 116                            | 441   | 98      | 655    | **                 | 81.02          |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               |            |
| Local                       | 50,455,778 |
| Remote                      | 60,577,907 |
| Fiche                       | 42,849,706 |
| Tape Mounts                 | 7,360      |
| Microfiche Developed        | 5,016      |
| Microfiche Frames Developed | 915,418    |

## GRAPHICS

|                   | # OF JOBS | # OF FRAMES |
|-------------------|-----------|-------------|
| CalComp Jobs      | 75        | **          |
| Matrix 35mm Color | 14        | 28          |
| Matrix-8 x 10     | 0         | 0           |
| Matrix-Negative   | 0         | 0           |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 24,553 |
| Round Tapes Saved           | 76     |
| Round Tapes Released        | 411    |
| Cartridges Saved            | 1,327  |
| Cartridges Released         | 1,087  |
| Datasets Exported to Tape   | 1,861  |
| Datasets Imported from Tape | 552    |

\* not available  
 \*\* not applicable



**AVAILABILITY STATISTICS, BY MACHINE (JANUARY 31 THROUGH FEBRUARY 27, 1992)**

|                                           | Monthly<br>Totals | Hardware | Scheduled<br>Software | Other | Hardware | Unscheduled<br>Software | Other |
|-------------------------------------------|-------------------|----------|-----------------------|-------|----------|-------------------------|-------|
| <b>CMS</b>                                |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 4.00              | 2.00     | 2.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 4.88              | 3.41     | 1.46                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <b>WYLBUR</b>                             |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 12.00             | 2.00     | 8.00                  | 0.00  | 1.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 9.85              | 4.70     | 3.68                  | 0.00  | 1.00     | 0.46                    | 0.00  |
| MTF/Unscheduled                           | 331.07            |          |                       |       | 662.15   | 662.15                  |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 1.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                           | 0.46              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.46                    | 0.00  |
| MTF/Unscheduled                           | 239.53            |          |                       |       |          | 239.53                  |       |
| <b>MVS TSO</b>                            |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 11.00             | 2.00     | 8.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 9.38              | 4.70     | 3.68                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 662.61            |          |                       |       | 662.61   |                         |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <b>JES3</b>                               |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 11.00             | 2.00     | 8.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 8.20              | 4.28     | 2.91                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           | 663.80            |          |                       |       | 663.80   |                         |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <b>CICS</b>                               |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 3.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 3.00                    | 0.00  |
| Hrs Unavailable                           | 1.53              | 0.00     | 0.00                  | 0.00  | 0.00     | 1.53                    | 0.00  |
| MTF/Unscheduled                           | 223.48            |          |                       |       |          | 223.48                  |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 3.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 3.00                    | 0.00  |
| Hrs Unavailable                           | 1.53              | 0.00     | 0.00                  | 0.00  | 0.00     | 1.53                    | 0.00  |
| MTF/Unscheduled                           | 79.48             |          |                       |       |          | 79.48                   |       |
| <b>VAX/VMS (VAX 8700)</b>                 |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 2.00              | 0.00     | 2.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 4.35              | 0.00     | 4.35                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <b>VAX/VMS (VAX 6410)</b>                 |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 2.00              | 0.00     | 2.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 4.51              | 0.00     | 4.51                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <b>CRAY</b>                               |                   |          |                       |       |          |                         |       |
| <i>All Shifts</i>                         |                   |          |                       |       |          |                         |       |
| Interruptions                             | 4.00              | 4.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 13.95             | 13.95    | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |
| <i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i> |                   |          |                       |       |          |                         |       |
| Interruptions                             | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                           | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                           |                   |          |                       |       |          |                         |       |

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JANUARY 31 THROUGH FEBRUARY 27, 1992)

| CC                                             | CCNAME                            | IBM      | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|------------------------------------------------|-----------------------------------|----------|----------|----------|----------|------------|-----------|
| ADVANCED PHOTON SOURCE                         |                                   |          |          |          |          |            |           |
| 131                                            | ACCELERATOR SYS DIV               | \$45     | \$3      | \$0      | \$5      | \$149      | \$202     |
| 132                                            | EXP FACIL DIV                     | \$67     | \$0      | \$0      | \$0      | \$122      | \$189     |
| 133                                            | APS PROJECT OFFICE                | \$0      | \$0      | \$0      | \$4      | \$0        | \$4       |
| 272                                            | ADVANCED PHOTON SOURCE            | \$66     | \$0      | \$0      | \$16     | \$27       | \$109     |
| 340                                            | APS ASD MANAGEMENT                | \$0      | \$0      | \$0      | \$0      | \$8,694    | \$8,694   |
| 341                                            | APS ACCELERATOR PHYSICS           | \$383    | \$3,389  | \$0      | \$98     | \$107      | \$3,977   |
| 342                                            | APS DIAGNOSTICS                   | \$3      | \$16     | \$0      | \$4      | \$0        | \$23      |
| 343                                            | APS LINAC                         | \$0      | \$89     | \$0      | \$1      | \$0        | \$90      |
| 344                                            | APS RF                            | \$9      | \$17     | \$0      | \$3      | \$71       | \$99      |
| 345                                            | APS VACUUM/MECHANICAL ENG.        | \$8      | \$2,907  | \$72     | \$63     | \$1,174    | \$4,224   |
| 347                                            | APS CONTROLS                      | \$48     | \$33     | \$0      | \$0      | \$85       | \$166     |
| 348                                            | APS MAGNETS                       | \$54     | \$34     | \$0      | \$48     | \$5        | \$141     |
| 349                                            | APS POWER SUPPLIES                | \$28     | \$0      | \$0      | \$0      | \$164      | \$193     |
| 350                                            | APS DIVISION MANAGEMENT           | \$0      | \$10     | \$0      | \$0      | \$0        | \$10      |
| 351                                            | APS INSERTION DEVICES             | \$46     | \$728    | \$0      | \$217    | \$130      | \$953     |
| 352                                            | APS ENGINEERED SYSTEMS            | \$28     | \$1,763  | \$0      | \$68     | \$733      | \$2,741   |
| 353                                            | APS BEAM LINE INSTRUMENTATION     | \$15     | \$788    | \$1      | \$68     | \$398      | \$1,271   |
| 360                                            | APS CONVENTIONAL FACILITIES       | \$9      | \$0      | \$0      | \$1      | \$0        | \$10      |
| 361                                            | APS PROJECT DIRECTION             | \$58     | \$70     | \$0      | \$315    | \$95       | \$538     |
| 362                                            | APS MANAGEMENT GENERAL            | \$18     | \$0      | \$0      | \$0      | \$21       | \$39      |
| SUBTOTAL                                       |                                   | \$886    | \$9,847  | \$74     | \$893    | \$11,974   | \$23,673  |
| ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH |                                   |          |          |          |          |            |           |
| 110                                            | BIO & MED RES DIV                 | \$738    | \$584    | \$86     | \$776    | \$998      | \$3,182   |
| 125                                            | TECHNOLOGY TRANSFER CENTER        | \$64     | \$9      | \$0      | \$2      | \$116      | \$191     |
| 149                                            | ENVIRONMENTAL RESEARCH DIV        | \$2,109  | \$231    | \$220    | \$986    | \$818      | \$4,363   |
| 155                                            | ENERGY SYSTEMS DIVISION           | \$2,111  | \$8,309  | \$2,971  | \$1,027  | \$655      | \$15,073  |
| 165                                            | ENV ASSESS & INFO SCI DIV         | \$2,589  | \$3,887  | \$1,146  | \$558    | \$3,839    | \$12,018  |
| 246                                            | ES-NAT'L ENERGY SOFTWARE CTR      | \$6      | \$0      | \$0      | \$157    | \$0        | \$163     |
| 274                                            | ENER/ENV/BIO RES PROG ADM         | \$141    | \$0      | \$0      | \$1      | \$271      | \$413     |
| SUBTOTAL                                       |                                   | \$7,757  | \$13,019 | \$4,423  | \$3,506  | \$6,697    | \$35,402  |
| ENGINEERING RESEARCH                           |                                   |          |          |          |          |            |           |
| 102                                            | EBR-II PROJECT-ANL WEST           | \$1,656  | \$13     | \$1,648  | \$2,312  | \$470      | \$6,099   |
| 104                                            | FUELS AND PROCESSES DIVISION      | \$1,232  | \$136    | \$282    | \$347    | \$329      | \$2,325   |
| 107                                            | CHEMICAL TECHNOLOGY DIVISION      | \$737    | \$120    | \$0      | \$486    | \$402      | \$1,745   |
| 112                                            | REACTOR ENGINEERING DIVISION      | \$4,896  | \$962    | \$414    | \$1,250  | \$639      | \$8,161   |
| 114                                            | MATLS & COMP TECH DIV             | \$3,095  | \$4,720  | \$459    | \$737    | \$1,391    | \$10,402  |
| 115                                            | ENGINEERING PHYSICS DIVISION      | \$2,065  | \$1,572  | \$369    | \$1,610  | \$942      | \$6,558   |
| 116                                            | REACTOR ANALYSIS DIVISION         | \$35,621 | \$6,328  | \$27,258 | \$10,782 | \$11,536   | \$91,524  |
| 117                                            | ENGINEERING PHYSICS ANL-WEST      | \$628    | \$146    | \$95     | \$302    | \$302      | \$2,858   |
| 118                                            | FUEL CYCLE DIVISION               | \$2,393  | \$2,495  | \$4      | \$121    | \$191      | \$5,204   |
| 171                                            | ENG RES PROG DIR                  | \$6      | \$0      | \$0      | \$0      | \$106      | \$111     |
| 197                                            | SPECIAL PROJECTS OFFICE           | \$215    | \$1      | \$0      | \$22     | \$158      | \$396     |
| 211                                            | ENGR PHYS DIV - DESIGN ENGR       | \$22     | \$0      | \$0      | \$10     | \$105      | \$137     |
| 269                                            | ANALYTICAL CHEMISTRY LABORATORY   | \$114    | \$11     | \$0      | \$5      | \$212      | \$342     |
| 271                                            | ENG RES PROG ADMIN                | \$176    | \$0      | \$0      | \$16     | \$274      | \$466     |
| SUBTOTAL                                       |                                   | \$52,855 | \$16,504 | \$32,121 | \$17,792 | \$17,057   | \$136,329 |
| PHYSICAL RESEARCH                              |                                   |          |          |          |          |            |           |
| 105                                            | MATERIALS SCIENCE DIVISION        | \$443    | \$5,948  | \$295    | \$1,063  | \$732      | \$8,482   |
| 109                                            | PHYSICS DIV                       | \$2,167  | \$611    | \$22     | \$1,106  | \$847      | \$4,753   |
| 120                                            | CHEMISTRY DIV                     | \$1,434  | \$7,956  | \$926    | \$374    | \$697      | \$11,386  |
| 136                                            | INT PULSE NEUT SOURCE PROG        | \$79     | \$141    | \$49     | \$324    | \$272      | \$866     |
| 137                                            | HIGH ENERGY PHYSICS DIV           | \$544    | \$2,545  | \$278    | \$851    | \$841      | \$5,058   |
| 139                                            | DIV OF EDUCATIONAL PROGRAMS       | \$209    | \$0      | \$0      | \$124    | \$156      | \$489     |
| 145                                            | MATHAMATICS & COMPUTER SCI DIV    | \$157    | \$54     | \$329    | \$25     | \$4,848    | \$5,414   |
| 146                                            | CTD DIV - SCI APPL & RES          | \$107    | \$733    | \$1,163  | \$169    | \$1,358    | \$3,530   |
| 273                                            | PHYSICAL RESEARCH PROGRAM ADMIN   | \$72     | \$10     | \$0      | \$39     | \$113      | \$234     |
| SUBTOTAL                                       |                                   | \$5,211  | \$17,998 | \$3,062  | \$4,077  | \$9,863    | \$40,210  |
| EXTERNAL                                       |                                   |          |          |          |          |            |           |
| 751                                            | FERMI NATIONAL LABORATORY         | \$562    | \$0      | \$0      | \$726    | \$487      | \$1,774   |
| 752                                            | NAVY                              | \$9,852  | \$0      | \$0      | \$1,211  | \$3,993    | \$15,056  |
| 753                                            | MORGANTOWN ENERGY TECH CENTER     | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 754                                            | DEPARTMENT OF ENERGY AT ANL       | \$2      | \$9      | \$0      | \$10     | \$11       | \$32      |
| 760                                            | ABBOTT LABORATORIES               | \$3      | \$1      | \$48     | \$0      | \$0        | \$52      |
| 763                                            | GENERAL ELECTRIC COMPANY          | \$0      | \$0      | \$0      | \$0      | \$0        | \$0       |
| 766                                            | BECHTEL NATIONAL, INC.            | \$0      | \$37     | \$9      | \$0      | \$1        | \$47      |
| 777                                            | UNIVERSITY OF CHICAGO AT ANL      | \$15     | \$0      | \$0      | \$1      | \$0        | \$16      |
| 778                                            | ARGONNE CREDIT UNION              | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 779                                            | UNIVERSITY OF ILLINOIS AT CHICAGO | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 780                                            | NEW BRUNSWICK LABORATORY          | \$11     | \$0      | \$0      | \$0      | \$0        | \$11      |
| 782                                            | PACKER ENGINEERING                | \$3      | \$21     | \$0      | \$0      | \$0        | \$24      |
| 783                                            | WEST VALLEY NUCLEAR SERVICES CO   | \$45     | \$0      | \$0      | \$0      | \$0        | \$45      |
| 784                                            | SSC LABORATORY                    | \$0      | \$46     | \$157    | \$0      | \$0        | \$202     |
| 787                                            | ILLINOIS INSTITUTE OF TECHNOLOGY  | \$0      | \$71     | \$0      | \$0      | \$11       | \$72      |
| 790                                            | GRUMANN AEROSPACE                 | \$0      | \$0      | \$0      | \$0      | \$11       | \$11      |
| 791                                            | LAWRENCE LIVERMORE                | \$0      | \$0      | \$0      | \$65     | \$-780     | \$-715    |
| SUBTOTAL                                       |                                   | \$10,509 | \$185    | \$215    | \$2,014  | \$3,722    | \$16,644  |



| CC  | CCNAME                               | IBM        | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|-----|--------------------------------------|------------|----------|----------|----------|------------|-----------|
|     |                                      | OPERATIONS |          |          |          |            |           |
| 143 | SUPP SERV DIV - ELEC DEPT            | \$246      | \$3      | \$0      | \$318    | \$368      | \$935     |
| 148 | HUMAN RESOURCES-MEDICAL DEPT         | \$2,676    | \$0      | \$0      | \$155    | \$510      | \$3,341   |
| 150 | SUPPORT SERV DIV - SPEC MATLS        | \$169      | \$0      | \$0      | \$22     | \$168      | \$360     |
| 161 | IPD-TECH INFO SERV                   | \$360      | \$24,946 | \$0      | \$5,529  | \$691      | \$31,526  |
| 201 | OFFICE OF THE DIRECTOR               | \$654      | \$0      | \$0      | \$135    | \$136      | \$925     |
| 202 | OFC OF CHIEF OPER OFCR               | \$16       | \$0      | \$0      | \$117    | \$101      | \$234     |
| 210 | SUPP SERV DIV - CENT SHOPS           | \$272      | \$0      | \$0      | \$76     | \$511      | \$859     |
| 216 | SUPPORT SERVICES DIVISION            | \$81       | \$0      | \$0      | \$7      | \$109      | \$197     |
| 222 | PLANT FAC & SERV-LODGING FAC         | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 232 | SUPPORT SERV DIV - SECURITY          | \$459      | \$0      | \$0      | \$22     | \$274      | \$754     |
| 234 | ESH DIV-HEALTH PHY                   | \$389      | \$469    | \$0      | \$754    | \$323      | \$1,936   |
| 235 | ESH DIV                              | \$869      | \$43     | \$0      | \$210    | \$386      | \$1,508   |
| 236 | ESH DIV-FIRE DEPT                    | \$6        | \$0      | \$0      | \$0      | \$101      | \$106     |
| 245 | COMPUTING AND TELECOM DIV            | \$30,186   | \$0      | \$0      | \$6,437  | \$4,058    | \$40,681  |
| 247 | COMP & TEL DIV - COM SERV            | \$2,928    | \$0      | \$0      | \$372    | \$1,772    | \$5,071   |
| 260 | IPD-MEDIA SERV DEPT                  | \$140      | \$707    | \$0      | \$27     | \$824      | \$1,699   |
| 265 | IPD-TECH COM SERV                    | \$7        | \$0      | \$0      | \$1      | \$0        | \$8       |
| 275 | OFFICE OF PUBLIC AFFAIRS             | \$427      | \$0      | \$0      | \$38     | \$160      | \$625     |
| 276 | OFC PUB AF - MOTN PIC UNIT           | \$39       | \$0      | \$0      | \$0      | \$13       | \$52      |
| 288 | INF & PUBL DIV                       | \$162      | \$232    | \$0      | \$21     | \$-504     | \$-88     |
| 296 | TELECOM COST/RECOVERY                | \$0        | \$0      | \$0      | \$65     | \$0        | \$65      |
| 315 | SUPP SERV DIV-MATLS & SERV           | \$4,452    | \$0      | \$0      | \$1,162  | \$496      | \$6,110   |
| 316 | PLANT FAC & SERV-VEH MAINT           | \$0        | \$0      | \$0      | \$0      | \$164      | \$164     |
| 317 | PLANT FAC & SERV-DRIVARIG SERV       | \$31       | \$0      | \$0      | \$1      | \$136      | \$167     |
| 319 | SUPP SERV DIV-TRAVEL OFC             | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 322 | SUPP SERV DIV-PROCUREMENT            | \$39       | \$0      | \$0      | \$29     | \$102      | \$171     |
| 331 | EEO-INDIRECT                         | \$0        | \$0      | \$0      | \$0      | \$0        | \$0       |
| 333 | ENVIR SAFE HEALTH & QA OVERSIGH      | \$856      | \$58     | \$0      | \$146    | \$621      | \$1,681   |
| 336 | SUPP SERV DIV - INSPECTION           | \$13       | \$1      | \$0      | \$0      | \$1        | \$16      |
| 400 | OFC OF CHIEF FIN OFFICER             | \$43,801   | \$0      | \$0      | \$2,885  | \$10,750   | \$57,435  |
| 401 | ACCOUNTING                           | \$0        | \$0      | \$0      | \$8      | \$0        | \$8       |
| 403 | BUDGET OFFICE                        | \$0        | \$0      | \$0      | \$0      | \$0        | \$0       |
| 410 | HUMAN RESOURCES DEPARTMENT           | \$23,987   | \$0      | \$0      | \$1,477  | \$2,673    | \$28,137  |
| 412 | AFFIRM ACTION PROGRAM                | \$58       | \$0      | \$0      | \$45     | \$101      | \$203     |
| 501 | PLANT FAC & SERV-BLDG MAINT          | \$436      | \$0      | \$0      | \$52     | \$324      | \$812     |
| 502 | PLANT FAC & SERV-INSTALLATIONS       | \$21       | \$0      | \$0      | \$3      | \$100      | \$124     |
| 503 | PLANT FAC & SERV-GROUNDS             | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 504 | PLANT FAC & SERV-CUSTODIAL           | \$3        | \$0      | \$0      | \$0      | \$100      | \$103     |
| 505 | PLANT FAC & SERV-WASTE MGMT OP       | \$54       | \$0      | \$0      | \$72     | \$102      | \$227     |
| 506 | PLANT FAC & SERV-PLANT MGR OFC       | \$556      | \$0      | \$0      | \$41     | \$334      | \$930     |
| 509 | PLANT FAC & SERV-OPERATION DIN       | \$0        | \$0      | \$0      | \$7      | \$0        | \$7       |
| 510 | PLANT FAC & SERV-UTILITY SYST        | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 512 | PLANT FAC & SERV-FAC PLNG/ENG        | \$342      | \$51     | \$0      | \$31     | \$168      | \$592     |
| 530 | SITE MGRS OFC-ANL WEST               | \$81       | \$0      | \$0      | \$2      | \$101      | \$184     |
| 531 | HUMAN RESOURCES-AW                   | \$175      | \$0      | \$0      | \$41     | \$100      | \$316     |
| 532 | SPECIAL MATLS-ANL WEST               | \$826      | \$0      | \$0      | \$191    | \$227      | \$1,243   |
| 533 | ACCOUNTING-ANL WEST                  | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 534 | PURCHASING-ANL WEST                  | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 535 | SECURITY - ANL WEST                  | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 536 | ENVIRONMENT, SAFETY & HEALTH-AW      | \$6        | \$0      | \$0      | \$0      | \$100      | \$106     |
| 537 | INFORMATION SERVICE-ANL WEST         | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 538 | SUPPLY-AW                            | \$283      | \$0      | \$0      | \$38     | \$100      | \$421     |
| 548 | ANL WEST GENERAL EXPENSE             | \$160      | \$0      | \$0      | \$45     | \$0        | \$205     |
| 550 | COMPUTER APPL & SERV - ANL-W         | \$95       | \$0      | \$0      | \$9      | \$101      | \$206     |
| 554 | MACHINE SHOP-ANL WEST                | \$20       | \$0      | \$0      | \$3      | \$100      | \$124     |
| 556 | SITE ENGRG-ANL WEST                  | \$86       | \$0      | \$0      | \$12     | \$100      | \$197     |
| 557 | PLANT SERVICES-AW-SERVICE REQ        | \$167      | \$1      | \$0      | \$13     | \$100      | \$281     |
| 558 | PLANT SERVICES-AW-FUNCTION           | \$3        | \$0      | \$0      | \$0      | \$0        | \$3       |
| 561 | OFC OF QUALITY ASSURANCE - AW        | \$3        | \$0      | \$0      | \$0      | \$101      | \$104     |
| 570 | ENVIRON HEALTH SAFETY QUAL ASSURANCE | \$0        | \$0      | \$0      | \$0      | \$2        | \$2       |
|     | SUBTOTAL                             | \$116,638  | \$26,513 | \$0      | \$20,622 | \$28,071   | \$191,844 |
|     | TOTAL                                | \$193,856  | \$84,065 | \$39,895 | \$48,903 | \$77,384   | \$444,103 |

## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance                                                     | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|--------------------------------------------------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center                                                      | 2-5421                                | 8-252-5421        | 252-5421                   |
| Current System Status Recorded Message                                         | 2-5466                                | 8-252-5466        | 252-5466                   |
| User Consultant                                                                | 2-5405                                | 8-252-5405        | 252-5405                   |
| Documentation                                                                  | 2-5405                                | 8-252-5405        | 252-5405                   |
| Computer Operations                                                            | 2-5421                                | 8-252-5421        | 252-5421                   |
| VM/SP Operator                                                                 | 2-8442                                | 8-252-8442        | 252-8442                   |
| RADS Maintenance                                                               | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service                                                      | 1-800-332-1478 (only within Illinois) |                   |                            |
| <b>CICS, CMS, Wylbur, and TSO Interactive Computing Services</b>               |                                       |                   |                            |
| IBM 3270 Protocol Converter                                                    |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-3270                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-3270                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-3219                   |
| X.25 Terminal Multiplexor                                                      |                                       |                   |                            |
| 300 to 19.2K Bits Per Second(Onsite)                                           | 2-2525                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-2525                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-2519                   |
| IBM 3174 Cluster Controller                                                    | 2-3174                                | n.a.              | n.a.                       |
| 1,200 Bits Per Second Full-Duplex<br>(Bell 212 and Hayes Compatible Modems)    | 2-2212                                | n.a.              | 252-2212                   |
| 1,200 Bits Per Second Full-Duplex<br>(Vadic 3400 Compatible Modems)            | 2-7612                                | n.a.              | 252-7612                   |
| 300 Bits Per Second                                                            | 2-7603*                               | n.a.              | 252-7603*                  |
| * When using a 300 bits per second modem, you must use a capital "P" to logon. |                                       |                   |                            |
| <b>Batch Remote Job Entry Service</b>                                          |                                       |                   |                            |
| 2,000 or 2,400 Bits Per Second<br>(Bell 201A and 201C Compatible Modems)       | 2-7989                                | n.a.              | 252-7989                   |
| 4,800 Bits Per Second<br>(Bell 208B Compatible Modems)                         | 2-7573                                | n.a.              | 252-7573                   |
| <b>Central DEC VAX Cluster</b>                                                 |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-8700                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-8700                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-8745                   |
| <b>Argonne TCP/IP Network</b>                                                  |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-5588                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-5588                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-4726                   |
| <b>Argonne ESnet Dial-Up</b>                                                   |                                       |                   |                            |
| 300 to 19.2K Bits Per Second                                                   | 2-7920                                | n.a.              | 252-7920                   |

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

|                       | MVS JES3<br>Batch, UNICOS<br>Wylbur,<br>and TSO | VM/XA                        | VMS                          |
|-----------------------|-------------------------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00                    | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                                     | 00:00-24:00                  | 00:00-24:00                  |

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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Argonne National Laboratory  
Computing and Telecommunications Division  
April and May 1992

## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering three classes and four labs. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### PC HARD DISK SURVIVAL TECHNIQUES

**Goal:** To learn about the basic hard disk properties of DOS-based computers. To learn about commercially available software that assists even the novice user with diagnostics, maintenance, and repairs.

**Prerequisite:** Anyone who has ever sensed impending data doom.

**Length of Class:** One hour

**Date and Time:** April 21, 1992 (Tuesday), 9:30 a.m. to 10:30 a.m.

**Location:** Building 221, Room A-216

**Instructor:** James Regula

There is a \$25 charge for this class.

### USING YOUR IBM PERSONAL COMPUTER FOR TELECOMMUNICATIONS

**Goals:** To understand and apply basic data communication practices to Laboratory-specific equipment (such as Asynchronous Communication Interfaces [ACIs], Asynchronous Data Interfaces [ADIs], and voice/data lines) by using commercial and public domain communication software for the personal computer.

**Length of Class:** One 2-hour session

**Date and Time:** May 20, 1992 (Wednesday), 9:30 a.m. to 11:30 a.m.

**Location:** Building 221, Room A-216

**Instructor:** James Regula

There is a \$25 charge for this class.



### **DEBUGGING FORTRAN (LECTURE)**

Goals: To learn the capabilities of modern debugging tools available for the Cray UNICOS, Sun Unix, VAX/VMS, and IBM CMS operating systems.

Length of Lecture: One 1-hour session

Date and Time: May 19, 1992 (Tuesday), 9:30 a.m. to 10:30 a.m.

Location: Building 221, Room A-261

Instructors: Pete Bertoncini  
Steve Karlovsky  
Dave Lifka  
Larry Rudsinski

### **DEBUGGING FORTRAN ON THE CRAY (LAB)**

Goals: To learn how to use the X Window CDBX debugger on the Cray.

Length of Lab: One 3-hour lab

Date and Time: May 19, 1992 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructors: Pete Bertoncini  
Steve Karlovsky  
Larry Rudsinski

### **DEBUGGING FORTRAN ON THE SUN (LAB)**

Goals: To learn how to use the X Window Xdbx debugger on the Sun.

Length of Lab: One 3-hour lab

Date and Time: May 21, 1992 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructors: Pete Bertoncini  
Steve Karlovsky  
Larry Rudsinski

### **DEBUGGING FORTRAN ON THE VAX (LAB)**

Goals: To learn how to use the VMS Symbolic Debugger on the VAX.

Length of Lab: One 3-hour lab

Date and Time: May 22, 1992 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructors: Pete Bertoncini  
Dave Lifka

### **DEBUGGING FORTRAN IN CMS (LAB)**

Goals: To learn how to use the IBM VS Fortran Interactive Debugger in CMS.

Length of Lab: One 3-hour lab

Date and Time: May 26, 1992 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructor: Pete Bertoncini

### **COMPUTER-BASED TRAINING COURSES**

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

#### **IBM CBT Course**

(Enter SLFTEACH at the CMS prompt.)

| <b>Course Name</b> | <b>Course Title</b>                         |
|--------------------|---------------------------------------------|
| SLFTEACH           | Introduction and Advanced Concepts of Xedit |

#### **DEC CBT Courses on the Central VAX 6410 (node ANLCV1)**

(Enter RUN "course name" at the DCL level.)

|         |                                               |
|---------|-----------------------------------------------|
| VMSCAI  | Introduction to VAX/VMS                       |
| LSECAI  | Introduction to the Language Sensitive Editor |
| EVECAI  | Introduction to the Extensible VAX Editor     |
| DTRCAI  | Datatrieve for Users                          |
| DTRPCAI | Datatrieve for Programmers                    |

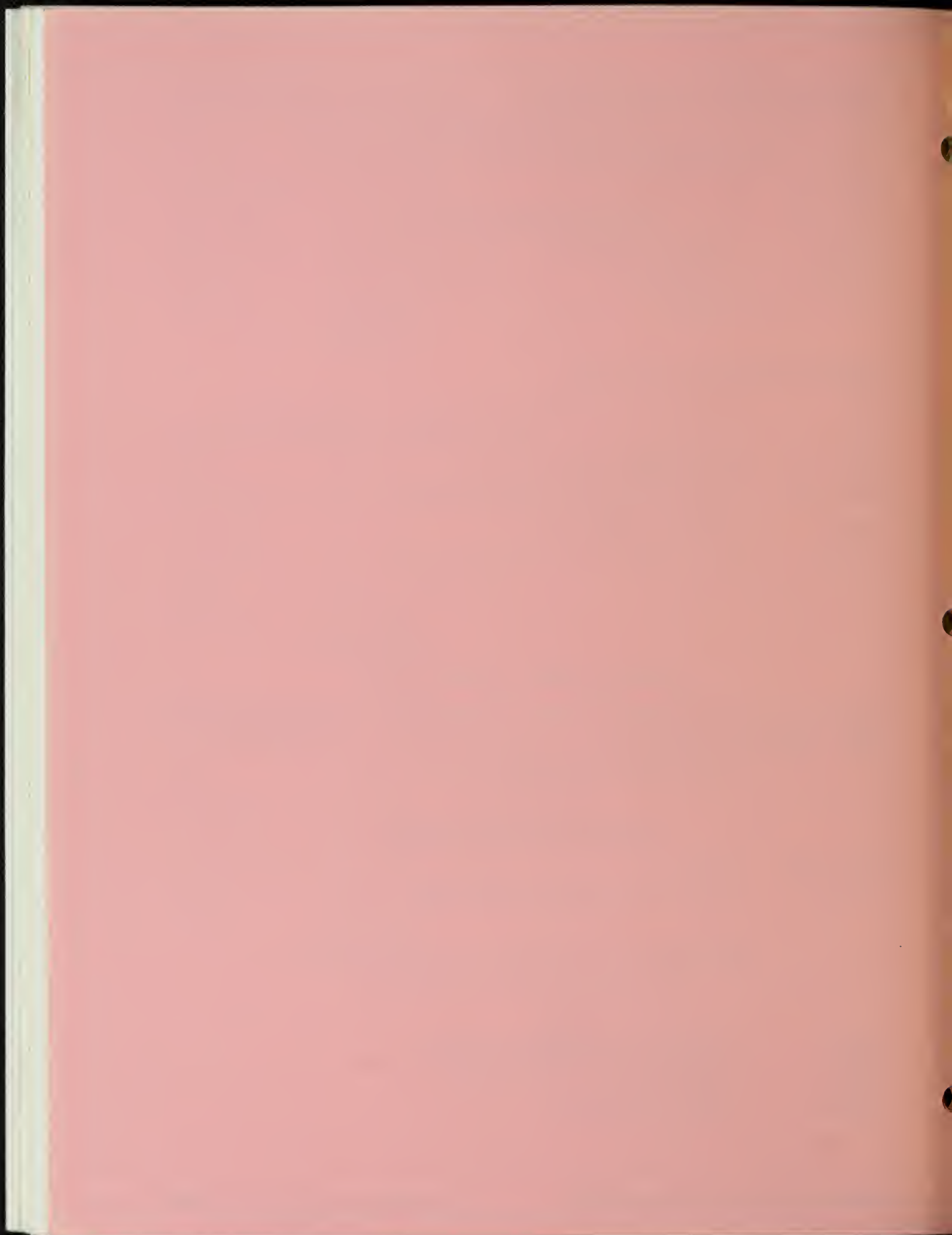




Table 1: Commands To Obtain Color Slides of PostScript Files

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cray                            | <p>You may use the lpr or the hardcopy commands to plot PostScript files from the Cray. To use lpr in the Bourne shell or C shell, enter:</p> <pre>lpr -Panlslide fn</pre> <p>To use the hardcopy command in the Bourne shell, enter:</p> <pre>PLOTDEST=ANLCV1.ANLSLIDE export PLOTDEST hardcopy fn PS</pre> <p>(Note: after these commands are entered, all graphics output created with the hardcopy command will be plotted at the destination specified by PLOTDEST until PLOTDEST is redefined.)</p> <p>To use the hardcopy command in the C shell, enter:</p> <pre>setenv PLOTDEST ANLCV1.ANLSLIDE hardcopy fn PS</pre> <p>(Note: after this command is entered, all graphics output created with the hardcopy command will be plotted at the destination specified by PLOTDEST until PLOTDEST is redefined.)</p> |
| Sun                             | <pre>lpr -Panlslide -CBnnnnn file</pre> <p>Printer anlslide must have been defined in your system's /etc/printcap file. (See "Accessing Central Printers via lpr" in the December 1991 Newsletter.) Your badge, Bnnnnn, is necessary for proper output distribution.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| CTD VAX cluster                 | <pre>PRINT/QUEUE=ANLSLIDE filespec</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| DECnet node                     | <p>If your DECnet node is running Argonne NJE, enter:</p> <pre>\$ SEND PRINT filespec ANLCV1 ANLSLIDE POSTSCRI</pre> <p>Otherwise, you must first copy the file to the central VAX cluster. Enter:</p> <pre>COPY filespec ANLCV1"username pass":::filespec1 PRINT/REMOTE/QUEUE=ANLSLIDE ANLCV1::filespec1 DELETE ANLCV1"username pass":::filespec1</pre> <p>DECnet copy requires that you have an account on the Argonne central VAX cluster. You may omit the VAX cluster username and password if you have arranged for a DECnet proxy from your remote DECnet node. Alternatively, if your DECnet node is also running TGV Multinet, your system manager may arrange with Barry Miller in CTD (extension 2-6860) to define Multinet print queues for the Matrix camera.</p>                                          |
| CMS                             | <pre>LISTPS fn ANLCV1 ANLSLIDE</pre> <p>The filetype of CMS PostScript files to be plotted with the CMS LISTPS EXEC must be LISTPS.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MVS                             | <pre>//jobcard //PSOUTPUT OUTPUT DEST=ANLCV1.ANLSLIDE,UCS=PS // EXEC SDSKLIST,INDSN='dsn',SYSOUT=A //SDSKLIST.SYSUT2 DD SYSOUT=A,OUTPUT=*.PSOUTPUT</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| IBM PC with Pathworks PC        | <pre>USE LPT1: \\ANLCV1\ANLSLIDE%username * NET PRINT filename.typ LPT1:</pre> <p>Username is your Argonne central VAX cluster username. The system will prompt you for your VAX cluster password. (See "How To Use VAX Cluster Printers from Personal Computers" in the September 1991 Newsletter.)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| IBM PC with NCSA Telnet and lpr | <pre>SET PRINTER=anlslide SET SERVER=anlcv1.ctd.anl.gov SET CONFIGTEL=[d:]path\config.tel LPR -CBnnnnn fn</pre> <p>You should set these environment variables in your AUTOEXEC.BAT file. CONFIGTEL specifies the path to your NCSA Telnet config.tel file. Your badge, Bnnnnn, is required for proper output distribution.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Macintosh                       | <p>Select LaserWriter in the Chooser<br/>Select Public AppleTalk from AppleTalk Zones<br/>Select ANLSLIDE<br/>Select Print from your application</p> <p>Before printing, enter your user name in the Chooser (System 6) or your owner name in the Sharing Setup entry in the Control Panel (System 7). For proper output distribution, your user name or your owner name must include your ANL badge number, in the form (Bnnnnn).</p>                                                                                                                                                                                                                                                                                                                                                                                  |

Table 2: Commands To Obtain Color Slides of Graphics Metafiles

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cray            | <p>To use the hardcopy command in the Bourne shell, enter:</p> <pre>PLOTDEST=ANLCV1.ANLSLIDE export PLOTDEST hardcopy fn PS color</pre> <p>(Note: after these commands are entered, all graphics output created with the hardcopy command will be plotted at the destination specified by PLOTDEST until PLOTDEST is redefined.)</p> <p>To use the hardcopy command in the C shell, enter:</p> <pre>setenv PLOTDEST ANLCV1.ANLSLIDE hardcopy fn PS color</pre> <p>(Note: after these commands are entered, all graphics output created with the hardcopy command will be plotted at the destination specified by PLOTDEST until PLOTDEST is redefined.)</p>                                                                                                                                                                   |
| Sun             | not available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| CTD VAX cluster | <pre>HARDCOPY filespec PS.ANLCV1::ANLSLIDE</pre> <p>(specify device option number 2)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| DECnet node     | <p>If your DECnet node is running Argonne NJE, enter:</p> <pre>HARDCOPY filespec PS.ANLCV1::ANLSLIDE</pre> <p>Otherwise, you must first copy the file to the central VAX cluster. Enter:</p> <pre>COPY filespec ANLCV1"username pass"::filespec1 SET HOST ANLCV1 HARDCOPY filespec PS.ANLCV1::ANLSLIDE</pre> <p>(specify device option number 2)</p> <pre>DELETE ANLCV1"username pass"::filespec1</pre> <p>DECnet copy requires that you have an account on the Argonne central VAX cluster. You may omit the VAX cluster username and password if you have arranged for a DECnet proxy from your remote DECnet node. Alternatively, if your DECnet node is also running TGV Multinet, your system manager may arrange with Barry Miller in CTD (extension 2-6860) to define Multinet print queues for the Matrix camera.</p> |
| CMS             | <p>To direct your PostScript output to the Matrix camera from CMS, enter:</p> <pre>SETPS ANLCV1 ANLSLIDE HARDCOPY fn ft PS</pre> <p>(specify device option number 2)</p> <p>(Note: after these commands are entered, all further PostScript output will be sent to the destination specified in SETPS until SETPS is redefined.)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| MVS             | <pre>//jobcard // EXEC PPS,DEST='ANLCV1.ANLSLIDE', // INDSN='dsn',OPTION=2</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| IBM PC          | not available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Macintosh       | not available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Table 3: Standard PostScript Hardware Fonts Available with CalComp and Matrix Services

Times-Roman  
*Times-Italic*  
**Times-Bold**  
***Times-Bold Italic***  
Helvetica  
*Helvetica-Oblique*  
**Helvetica-Bold**  
***Helvetica-Bold Oblique***  
Courier  
*Courier-Oblique*  
**Courier-Bold**  
***Courier-Bold Oblique***  
Symbol  
Palatino-Roman  
*Palatino-Italic*  
**Palatino-Bold**  
***Palatino-Bold Italic***  
Avant Garde-Book  
*Avant Garde-Book Oblique*  
**Avant Garde-Demi**  
***Avant Garde-Demi Oblique***  
Helvetica-Narrow  
*Helvetica-Narrow-Oblique*  
**Helvetica-Narrow-Bold**  
***Helvetica-Narrow-Bold Oblique***  
Bookman-Light  
*Bookman-Light Italic*  
**Bookman-Demi**  
***Bookman-Demi Italic***  
New Century Schlbk-Roman  
*New Century Schlbk-Italic*  
**New Century Schlbk-Bold**  
***New Century Schlbk-Bold Italic***  
*Zapf Chancery-Medium Italic*  
Zapf Dingbats





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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division  
DEPOSITORY

VOLUME 23

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MAY 1992

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

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"First Among Equals"

Only you can do it!

# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

|                                             |                          | Room  | Phone  | Electronic Mail Address     |
|---------------------------------------------|--------------------------|-------|--------|-----------------------------|
| Division Director                           | Mike Boxberger (Acting)  | A251  | 2-7155 | boxberger@anl.gov           |
| Computer Protection Program Manager         | Jean Troyer              | A240  | 2-7440 | ljtroyer@anl.gov            |
| Computing and Telecommunications Operations | Larry Amiot              | A237  | 2-5432 | B10523 AT ANLVM             |
| Computer Network                            | Bob McMahon              | B239  | 2-7270 | B17385 AT ANLVM             |
| Data Communications                         | Linda Winkler            | B251  | 2-7236 | B32357 AT ANLVM             |
| Service Engineering                         | Paul Phillips            | D118  | 2-4343 | B36679 AT ANLVM             |
| Network and Computer Operations             | Gary Schlesselman        | A113  | 2-5437 | B09819 AT ANLVM             |
| Day and Weekend Operation                   | Bob Bilshausen           | A134  | 2-5421 |                             |
| Document Distribution Counter               |                          | A134  |        |                             |
| Evening and Overnight Operation             | Mike Monczynski          | A134  | 2-5421 |                             |
| Tape Librarian                              | Sandra Vasko             | A134  | 2-7681 | B18669 AT ANLVM             |
| Trouble Reporting                           |                          | A134  | 2-5421 | noc@anl.gov                 |
| Systems Programming                         | John Volmer (Acting)     | B211  | 2-5449 | B32831@ACHILLES.CTD.ANL.GOV |
| Telephone Services                          | Allen Winter             | B247  | 2-2764 | B07059 AT ANLVM             |
| User Services                               | Fred Moszur              | A121  | 2-7419 | fredm@anl.gov               |
| Computer Use Authorizations                 | Fran Carnaghi            | A147  | 2-5425 | B27596 AT ANLVM             |
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| Education and Assistance                    | Pete Bertoncini (Acting) | E101  | 2-4827 | B15013 AT ANLVM             |
| Management Information Systems              | Diane O'Brien            | B151  | 2-7167 | B26424 AT ANLVM             |
| Financial Systems                           | Nick Moore               | C115D | 2-8075 | B31048 AT ANLVM             |
| Human Resource Systems                      | Bob Hischier             | B147  | 2-7272 | B22639 AT ANLVM             |
| Information and Production Services         | Miriam Bretscher         | B139  | 2-7252 | B26187 AT ANLVM             |
| Materials and Plant Systems                 | Rich Slade               | B159  | 2-7329 | B32848 AT ANLVM             |
| Planning, Finance, and Administration       | Mike Boxberger           | A245  | 2-5638 | B34540 AT ANLVM             |
| Scientific Applications and Research        | Charles Mueller          | A231  | 2-7153 | B11284 AT ANLVM             |
| Software Management Program                 | Dennis Tussing           | B228  | 2-4656 | B35139 AT ANLVM             |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 4/490 with Sun OS 4.1.1, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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| Education and Assistance                    | Pete Bertoncini (Acting) | E101  | 2-4827 | B15013 AT ANLVM             |
| Management Information Systems              | Diane O'Brien            | B151  | 2-7167 | B26424 AT ANLVM             |
| Financial Systems                           | Nick Moore               | C115D | 2-8075 | B31048 AT ANLVM             |
| Human Resource Systems                      | Bob Hischer              | B147  | 2-7272 | B22639 AT ANLVM             |
| Information and Production Services         | Miriam Bretscher         | B139  | 2-7252 | B26187 AT ANLVM             |
| Materials and Plant Systems                 | Rich Slade               | B159  | 2-7329 | B32848 AT ANLVM             |
| Planning, Finance, and Administration       | Mike Boxberger           | A245  | 2-5638 | B34540 AT ANLVM             |
| Scientific Applications and Research        | Charles Mueller          | A231  | 2-7153 | B11284 AT ANLVM             |
| Software Management Program                 | Dennis Tussing           | B228  | 2-4656 | B35139 AT ANLVM             |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 4/490 with Sun OS 4.1.1, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers is under VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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## COMPUTING COMMENTS

### **MEDIA SERVICES PUBLIC DEVICES AVAILABLE**

The Media Services Department (MED) provides a variety of output and input devices that are available to everyone onsite (see "Media Services Public Devices" at the back of this *Newsletter*). The output devices are connected to electronic networks and are available to users of Apple Macintoshes, Unix workstations, PC Pathworks, and central VMS and IBM computers. Available devices include:

#### **Black-and-White Output**

11-by-17 laser printer (QMS 2200)--PostScript

high-resolution photographic (Linotype Imagesetter)--1270 dots per inch (dpi) paper, 2540 dpi film, PostScript, intended for final output rather than proofs

#### **Color Output**

8.5-by-11 and 11-by-17 paper--PostScript  
8.5-by-11 and 11-by-17 transparency--PostScript  
35mm slides or negatives, PostScript or PICT

The input devices are not connected to electronic networks. Also available is transfer of the Apple Macintosh output from these scanners to disk operating system (DOS) disks:

#### **Black-and-White Input**

paper image scanner--8 bit, 8.5 by 11  
optical character recognition--convert paper documents into an electronic file

#### **Color Input**

paper image scanner--24 bit, 8.5 by 11  
35mm image scanner--24 bit, 35mm slide or negative

For more detailed information, contact Lee Wagar at extension 2-5603.

### **MEDIA SERVICES INTRODUCES A NETWORKED ELECTRONIC PRINTER: WHY PRINT TO STOCK? WHY NOT PRINT TO ORDER?**

The Media Services Department (MED) is acquiring and installing a Kodak Lionheart Ektaprint 1392 printer. This device combines the functions of a networked PostScript laser printer and a high-speed duplicator in one machine. A Sun SPARCstation accepts the job from a queue, compiles the PostScript, and sends this file to be printed. The printer will be connected to the site-wide Ethernet. Eventually, everyone with access to Ethernet will be able to print to the Lionheart.

MED intends for this machine to provide on-demand (or just-in-time) printing. Rather than print an entire job at one time, one may print only the number of copies needed immediately, store the job at the SPARCstation, and print additional copies as necessary. This procedure will increase the availability of the Lionheart, decrease the need to store extra documents onsite, and free up staff who currently print originals on a laser printer and then duplicate documents at a convenience copier. Furthermore, since the Lionheart is functionally an output device, each "copy" is actually an original, with inherent improvements in quality.

When the machine is operational, MED will offer reduced pricing as an invitation to try out the system.

For more information, contact Lee Wagar at extension 2-5603.

### **NOW OPEN--THE ARGONNE ELECTRONIC MAIL POST OFFICE!**

The Computing and Telecommunications Division (CTD) is announcing the grand opening of the Argonne Electronic Mail Post Office. Just as there is a post office to handle incoming paper mail, CTD has developed an electronic post office to handle incoming E-mail. A locally developed alias name service will allow ANL computer users to register an E-mail nickname with this electronic post office and then use "nickname@anl.gov" as their E-mail address. The electronic post office will forward E-mail addressed in this manner to the computer you have specified.



This alias name system will:

1. Allow ANL computer users to change their E-mail address without losing any mail. Currently, every time your E-mail address changes (either because you change computers or your division changes its name), you must notify every person who knows your address and give them the new one. With the alias name service, you simply create a nickname that forwards your E-mail to your real address.
2. Hide login IDs and node names from E-mail users. This situation promotes good computer security by keeping your login ID separate from your E-mail address.
3. Allow users to create, modify, or delete their own nicknames by using E-mail. Users can control their own nicknames and can make timely changes when they need to without relying on a system administrator to update the database. For example, now you can be known as JBdiGriz instead of B12345.

This electronic post office will forward E-mail addressed to "nickname@anl.gov" to "your\_userid@node.div.ANL.GOV." The electronic post office will forward E-mail to any Argonne computer connected to or able to go through a gateway to the Argonne Transmission Control Protocol/Internet Protocol (TCP/IP) network. The nodename allowed in the "node.div.ANL.GOV" field can be the nodename of a divisional VAX, a Sun server or workstation, an Apple Macintosh with QuickMail, an IBM Personal Computer with "cc:Mail," the CTD IBM mainframes, and many other computers with TCP/IP Simple Mail Transport Protocol (SMTP) connections.

To register your nickname with the alias name server:

1. Create your own unique nickname. We recommend first initial, middle initial, and last name (for example, James B. diGriz would use JBdiGriz for his nickname).
2. Determine the address you want your E-mail forwarded to--your current E-mail address (for example, b12345@anlcv1.ctd.anl.gov).

3. Create your own unique control identifier (cid). This cid keeps others from tampering with your nickname entry. You may use any sequence of letters, numbers, or special characters on your keyboard. Do NOT use your computer logon password!!!
4. Register your nickname and current E-mail address with the electronic post office (see Figure 1).
5. Notify computer users who send you E-mail to use your new nickname E-mail address (nickname@anl.gov) instead of the address they are currently using.
6. Update your business cards and ANL telephone book entry to specify your new E-mail address (nickname@anl.gov).

For example, the ANL computer user, James B. diGriz, has an account on the Argonne VAX cluster named anlcv1.ctd.anl.gov. He wants to start using the alias name service. To do so, he would logon to the VAX and create the following mail message:

*Figure 1: Electronic Post Office Registration Example*

```
To: gateway::"alias@anl.gov"
Subject: cmd.add

nick.JBdiGriz
addr.b12345@anlcv1.ctd.anl.gov
cid.myemail **YOUR own personal control identifier
name.James B. diGriz
```

**\*\*The cid field is used to prevent others from changing your nickname. You should put a unique character string here to protect your nickname.**

Press the proper keys to send this mail; your nickname will be registered. Note: If you use another ANL E-mail system, follow your usual procedures to create and send your mail message.

When your nickname is successfully registered, you will receive confirmation by mail from the alias name server. To receive a complete list of commands recognized by the post office program, send mail to "alias@anl.gov" with a "Subject:" line of "help."

#### Background:

The electronic post office is a program running on a computer here at Argonne. ANL computer users can communicate with this program by using E-mail messages. The "Subject:" line and the body of the note contain instructions to the program to add, change, or delete nickname entries. Once a request is received, the program verifies that the user has supplied all the required information for that request. Valid requests are processed, and an acknowledgment is mailed back to the requestor. Otherwise, an error message is mailed back to the requestor. This service is completely automated.

To use this service, invoke your E-mail program and send a mail message to the user "alias" at "anl.gov" (for example, "To: alias@anl.gov"). If the "Subject:" line contains "help," the alias name service help file will be mailed back to you. This help file contains a list of all the valid commands and examples on how to set up your nickname. If the post office receives a message with no recognizable commands, an error message is mailed back to you indicating how to get the help file.

#### **OBTAINING A CENTRAL COMPUTER ACCOUNT FOR NON-ANL STAFF**

CTD issues central computer accounts to any non-ANL staff associated with an ANL project or DOE-related work. Users who qualify are work-for-other contractors, acknowledgment-of-purchase-order accounts (ACK#), and consultants or collaborators hired by an ANL division for a particular project. Typically, CTD assigns to ANL employees computer account numbers that are the same as their employee badge number. However, for non-ANL employees, CTD assigns computer account numbers called pseudo badge numbers that are unique numbers in the range not currently used for employee badge numbers (for example, B8nnnn). Non-ANL employees should obtain their own computer accounts instead of sharing accounts and passwords (which is a violation of computer security). There is

no additional charge for a pseudo badge number userid.

To obtain a central computer account, contact Account Services (Building 221, Room A-147, 708-252-5425). You must provide a charge code number for computer billing.

#### **FORTRAN 90 WORKSHOP SCHEDULED**

CTD and the Numerical Algorithms Group, Inc. (NAG) will sponsor a workshop on the Fortran 90 language on Monday and Tuesday, June 1 and 2, 1992, in Building 223, Room B-002. Morning sessions will introduce new language features and will highlight characteristics that distinguish Fortran 90 from Fortran 77. A knowledge of Fortran 77 will be assumed. Afternoons will be devoted to laboratory sessions and will use NAG's f90 compiler, the first implementation of the full International Standards Organization (ISO) Fortran 90 standard, to provide participants with "hands on" experience with the language. The workshop leader will be Walt Brainerd, co-author of *Programmer's Guide to Fortran 90* and *The Fortran 90 Handbook* and co-editor of *The Fortran Journal*.

Only 24 participants can be accommodated in the afternoon laboratory sessions, which will meet in Building 221, Room A-261; but all are invited to attend the morning lectures. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). See the schedule appended to this *Newsletter*.

#### **COMPUTING CLASSES SCHEDULED FOR MAY AND JUNE 1992**

During May and June 1992, CTD will offer nine classes and four labs. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Using Your IBM Personal Computer for Telecommunications* (one 2-hour session) assists



Argonne personnel in understanding and applying basic data communication practices to Laboratory-specific equipment (such as Asynchronous Communication Interfaces [ACIs], Asynchronous Data Interfaces [ADIs], and voice/data lines). The class will demonstrate commercial packages (for example, Procomm Plus and Crosstalk for Windows) and public domain communication software (for example, Kermit) for the personal computer. There is a \$25 charge for this class.

*Debugging Fortran* (one 1-hour introductory lecture and four 3-hour labs) introduces you to modern program debugging tools available for the Cray UNICOS, Sun Unix, VAX/VMS, and IBM CMS operating systems. The introductory lecture will review the tools available for each of these systems. We will demonstrate the use of the dbx debugger in Unix, the Xdbx X Window debugger on the Sun, the VMS symbolic debugger on the VAX, and the IBM VS Fortran interactive debugger in CMS. The 3-hour lab for each of the operating systems will allow you to use these tools on your preferred system. You should sign up for labs for each of the operating systems in which you will be developing and debugging programs. NOTE: We have canceled the Cray CDBX debugging lab; we are replacing it with a Unix dbx debugging lab.

*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the CTD VAX cluster before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

*Introduction to Unix* (three 3-hour lectures with three 1-hour labs) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will entail the use of Unix from ASCII terminals to reinforce the lecture content.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour lecture with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

*Introduction to UNICOS* (one 3-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/18 high-performance computer. The class will review material covered in the *Introduction to Unix* class and will cover shell programming, Network Queuing System (NQS) job submission, and management of Cray files from the IBM MVS front-end station or from scientific workstations via Transmission Control Protocol/Internet Protocol (TCP/IP).

*Using CMS with IBM 3270-Compatible Display Terminals* (two 3-hour lectures with labs) is for CMS users of IBM 3270-compatible display terminals, IBM or Apple Macintosh personal computers with NCSA tn3270, or ASCII terminals with the Hydra Protocol Converter. This class is for people who send or receive electronic mail; who organize



information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. The labs use ASCII terminals with the Hydra Protocol Converter, but the principles learned will apply to all the terminals and access methods mentioned above. Everyone registering for the CMS class must have a CMS account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

## CRAY NEWS

### UNICOS CPU TIME LIMIT RAISED

Effective Thursday, April 30, 1992, CTD raised the CPU time limit for UNICOS batch jobs from 3 hours to 12 hours. Raising the CPU time limit permits users to avoid breaking up lengthy executions into several smaller executions and therefore should simplify the use of the Cray X-MP/18 computer.

Previously, users needed approval in advance from CTD Operations to be able to submit jobs with time limits larger than three hours. This pre-approval process inconvenienced users. Approvals were often difficult to obtain, especially if the need for extended time was discovered during non-prime periods.

Users should check the recorded message for scheduled shutdowns of UNICOS, especially if their jobs are submitted for overnight execution (class X) and the elapsed time of those jobs is greater than 9 to 10 hours. CTD performs system maintenance on UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays, and it is possible that CTD may cancel active jobs if they conflict with needed maintenance efforts.

Users should also note that CTD will only refund the last 15 CPU minutes of a user's batch charges if a system shutdown/failure occurs and therefore should consider implementing a checkpoint mechanism in their long-running codes.

Users with questions or an interest in executing extended length applications should call the User Services consultants at extension 2-5405.

### RESULTS OF THE CRAY RATE EXPERIMENT

From February 14 through April 26, 1992, CTD experimented with the Cray rate model to determine if the cost of Cray computer use was limiting the demand of Argonne scientists and engineers for Cray computer time. During the experiment, CTD added a new job class that cost \$75 per CPU hour. The surprising demand for Cray time during the December 1991 holiday period (December 23, 1991, through January 1, 1992) when CTD offered a steep discount in the cost of Cray computing motivated the experiment.

The results of the experiment are summarized in Figure 2 and Figure 3 that depict (1) the CPU usage of the Cray X-MP and (2) the revenue from the Cray X-MP from the December 1991 holiday period to the present. Some notable events are:

- The original discount period (December 23, 1991, through January 1, 1992).
- The beginning of the experiment on February 14, 1992.
- The increased CPU and memory limits on March 2, 1992.
- The reduction in the interactive rate to \$500 per CPU hour on March 9, 1992.

In summary, the experiment has increased the use of the Cray X-MP, but enough usage has shifted away from the higher classes of x and y to class z to actually reduce CTD's income. Because one of the criteria of the experiment was that CTD's income not be substantially reduced, the experiment could not be continued.

At this time, CTD is raising the CPU time limit on all classes from three hours to twelve hours. See "UNICOS CPU Time Limit Raised" in this *Newsletter*.)

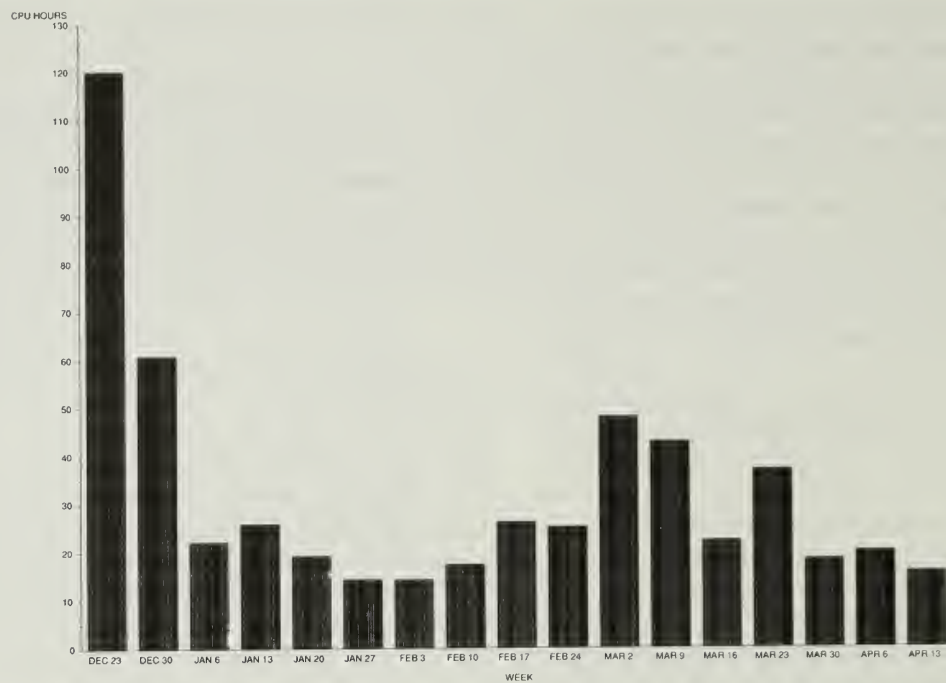


Figure 2: Cray X-MP Computer Usage in CPU Hours (Including Only Billable Usage)

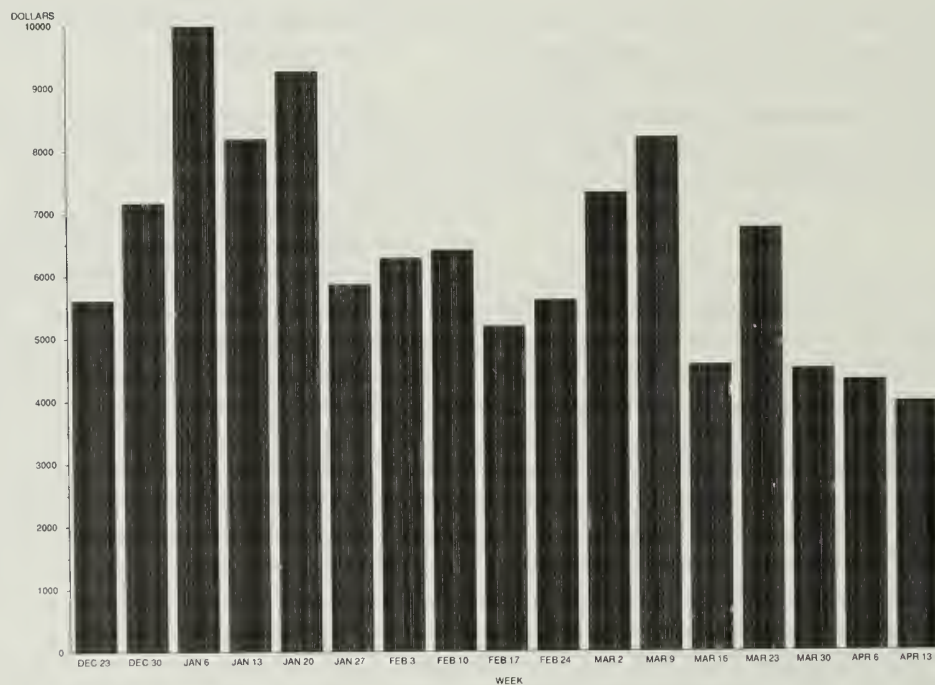


Figure 3: Cray X-MP Computer Usage in Dollars (Including Only Billable Usage)



## MANAGEMENT INFORMATION SYSTEMS

### ADMINISTRATIVE LONG-RANGE PLAN INPUT REQUESTED

Each year, CTD publishes *A Plan for Administrative Computing at ANL*. This *Plan* describes administrative computing systems planned or in use throughout the Laboratory. Management Information Systems (MIS) develops this document with the users of the administrative systems and the Administrative Data Processing Oversight (ADPO) Committee. To make the *Plan* as comprehensive and relevant as possible, MIS collects information about all administrative computing at the Laboratory. The FY1993--FY1995 *Plan* will mark the twelfth consecutive year MIS has issued this comprehensive long-range planning document.

James O'Kelley, Chairman of ADPO, requests all division directors, department heads, and project managers to contribute to the *Plan*. Information in the *Plan* about administrative systems includes:

- Description of all existing administrative computing systems at the Laboratory (including those on personal computer systems and minicomputers).
- Plans for administrative system development and system enhancements.
- Descriptions of computer hardware used or planned for each administrative system: personal computers, minicomputers, central IBM computers, and VAX computers.
- Requirements for obtaining data electronically from an official administrative system to be used in your systems.
- Division plans for developing divisional administrative systems.

The ADPO Committee will begin to review ADPO funding proposals for FY1993 through FY1995 in May 1992. For assistance in developing your administrative computing plans, contact MIS at extension 2-7156. *A Plan for Administrative Computing at ANL: FY1992 through FY1994* (ANL/TM 489) is available at the Document Distribution

Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

### IFS MONTH-END REPORTING--HOW IT'S DONE

At the end of the month, the Office of the Chief Financial Officer closes the Laboratory's financial books and reports to DOE by the fourth working day of the next month (the October year-end close is an exception to this rule). Immediately following, usually after 2:00 p.m. on the fourth working day, the Integrated Financial System (IFS) Project Team begins submission of approximately 1,800 report jobs to produce the end-user financial reports.

When the IFS Project Team originally designed the report submission facility, careful consideration was given to the impact of these report jobs on other computer users. We did not wish to create response time problems for online users and execution delays for other batch jobs.

Because of the substantial batch workload in a short time period at the beginning of the month, changes to the mainframe configuration like those that occurred at the beginning of April 1992 can have an impact on the report submission facility. To reduce the impact on other computer users:

1. The report submission facility uses a specific production account for running the batch jobs so that we can control when reports are submitted and can use job parameters to control the individual jobs.
2. The time and job class parameters on the job cards control how many report jobs can run concurrently.

After the initial implementation, we also added a five second delay between jobs so as not to swamp the system. Operations personnel have all the tools they need to address performance problems adequately.

To produce the financial reports for end users as close as possible to the end of the month without impacting other users, the IFS Project Team and CTD Operations will continue to work closely together to monitor the month-end process.



Any computer users who have questions about the report submission facility or about IFS should call Nick Moore at extension 2-8075.

## **MVS NEWS**

### **IBM DISK MIGRATION PROGRESS**

The migration of user data from original IBM 3380 disk technology to newer Amdahl disks (equivalent to second-generation IBM 3380 disk technology) is progressing well. CTD has moved all the VM minidisks that needed to be moved and all the MVS user datasets on PER701 through PER709 and PER713. Also, CTD has moved all of the MVS and VM system disks affected by the migration and has used this migration to expand the MVS scratch disk supply by 25 percent and to double the VM spool space. CTD has moved all production data to the Amdahl disks.

One principal area remains to be completed. Although the DAT8nn data has all been migrated to new volumes, CTD's Management Information Systems (MIS) analysts are still moving all of the critical administrative applications data to accomplish the final configuration as planned.

Although no specific date exists for completing this data movement, CTD plans to complete the migration by the end of May 1992. Users with questions or concerns on the data movement should contact John Volmer at b32831@achilles.ctd.anl.gov or at (708) 252-5449.

## **PERSONAL COMPUTING**

### **ELECTRONICS PROVIDES LAN MANAGER NETWORKING SERVICES**

Electronics provides system hardware, planning, and installation for LAN Manager and other networks. Electronics has installed a LAN Manager Test Network running Microsoft's latest Version 2.1 software in Building 222. You can configure this software version by using only the Transmission Control Protocol/Internet Protocol (TCP/IP). TCP/

IP-based systems are compatible with the Laboratory-wide Ethernet. Currently, Electronics and CTD are evaluating Microsoft's TCP/IP implementation of LAN Manager for use on the Laboratory network. The test server also has Microsoft LAN Manager services for the Apple Macintosh installed, which allows the Apple Macintosh computer user access to AppleShare files and queued print services.

The Electronics test server runs on an Electronics-assembled IBM Personal Computer clone using a 80386 40 megahertz processor. The system has a 200 megabyte small computer systems interface (SCSI) hard drive, 2.3 gigabyte Exabyte tape drive, and 16 megabytes of main memory. It also has Video Graphics Adapter (VGA) graphics, two serial ports, one parallel port, and a 3C507 Ethernet interface board.

The latest version of the Microsoft network software has received excellent reviews. A Microsoft LAN Manager network server is a good choice for new networks and as an extension or replacement for older 3Com networks.

Network routers easily route networks by using the TCP/IP protocol and allow possible interconnection to other architecture systems at the Laboratory. Individuals interested in exploring the functions of LAN Manager on the Electronics Test Network or in discussing Electronics Department services should call Chuck Beck at extension 2-6969.

### **DISINFECTANT 2.8 AVAILABLE FOR APPLE MACINTOSH COMPUTERS**

Disinfectant 2.8, a minor upgrade to the Apple Macintosh Disinfectant 2.6 and Disinfectant 2.7.1 programs, is now available on the Apple Macintosh Public Volume in the Virus Abatement folder. This upgrade can now detect the INIT 1984 and CODE 252 viruses.

To copy Disinfectant 2.8:

1. Open the chooser
2. Select AppleShare
3. Select the zone "Public AppleTalk"
4. Select the file server "VAX server"

5. Log on as a guest and check "OK"
6. Check "OK" and close the chooser
7. Open the Public Volume
8. Open the Virus Abatement Folder
9. You may either launch and run Disinfectant 2.8 or copy it onto your hard disk

Users who do not have access to this volume can get Apple Macintosh *Disinfectant* v2.8 (a 3-1/2 inch diskette) at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

#### **APPLETALK NETWORK REORGANIZED**

On Wednesday, March 18, 1992, Argonne reconfigured the Laboratory-wide AppleTalk to increase the address size of the backbone and to delete bad AppleTalk zone names.

Because of an increasing number of Laboratory-wide Apple Macintosh Ethernet connections, the size of the backbone has doubled from 508 to 1,016 addresses. The new backbone uses network numbers 9 through 12. Each network number corresponds to 254 network addresses.

The second reason for the reconfiguration was to delete bad zone names from the Laboratory-wide zone list. Unfortunately, AppleTalk distributes zone names to all AppleTalk routers. Improperly typed zone names will propagate throughout the network and are not easily deleted. In our case, all AppleTalk routers had to be shut down simultaneously to delete the bad zone names.

Users bringing up AppleTalk routers should avoid entering any AppleTalk zone information for Laboratory-wide Ethernet connections. AppleTalk routers can be configured either to seed a network (they tell other devices about the backbone configuration) or not to seed a network (they request network information from seeding nodes). CTD maintains the primary AppleTalk seeder; Chemical Technology (CMT) maintains the back-up. All other AppleTalk routers should be non-seeding. Anyone having difficulty bringing up a non-seeding AppleTalk router should contact the CTD Computer Network Section at extension 2-4360.

#### **MACINTOSH QUADRA 700/AUX 3.0 AVAILABLE FOR TESTING**

Beginning on April 27, 1992, Apple Computer has provided Argonne with an Apple Macintosh Quadra 700 with the AUX 3.0 program for 60 days. It can be made available at your location for a limited period for your evaluation and testing.

Interested users should send a request by electronic mail to [mac\\_consult@qmgate.anl.gov](mailto:mac_consult@qmgate.anl.gov).

#### **TELECOMMUNICATIONS NEWS**

##### **ADDITIONAL DOE NJE NODES ARE ACCESSIBLE FROM ANL**

CTD has begun using the 9600 baud leased line between Argonne East and DOE Headquarters in Germantown for the Systems Network Architecture/Network Job Entry (SNA/NJE). Previously, this line was used almost exclusively for SNA terminal access between Argonne and Germantown. By defining an SNA/NJE link between ANLVM and DOEVM, we gain access to additional NJE nodes at other DOE and federal government sites (see Table 1). These new nodes are not on BITnet, so their only access from Argonne is via the new SNA/NJE link. Many of these nodes do not yet have the Argonne NJE nodes in their NJE configuration files; we are working on getting the ANL NJE network defined to these nodes.



*Table 1: Additional Department of Energy NJE Nodes*

|          |                                                           |
|----------|-----------------------------------------------------------|
| ALO      | Albuquerque Operations Office JES-2                       |
| NWCMAIL  | ALO Message Router PROFS to All-in-One Bridge             |
| DOEAL    | Albuquerque Operations Office All-in-One (via NWCMAIL)    |
| DOENV    | Nevada Operations Office All-in-One (via NWCMAIL)         |
| BETHJES2 | Computer Data Systems, Inc. (CDSI) Rockville Office JES-2 |
| BPAVANC  | Bonneville Power Administration 3081 MVS/JES2             |
| BPAPORT  | Bonneville Power Administration 4341 VM/RSCS              |
| BPAPORT2 | Bonneville Power Administration 4341 VM/RSCS              |
| DOESA    | DOE System Administrator Training RSCS                    |
| DOEVMXA  | DOE VM/XA Test System JES-2                               |
| DOEVMESA | DOE VM/ESA Test System RSCS                               |
| DOEXA    | DOE MVS/XA Test System JES-2                              |
| EIA      | Energy Information Administration 3084 MVS/JES            |
| EIAVM    | Energy Information Administration VM                      |
| EOPMVS   | Executive Office of the President JES-2                   |
| FERC     | Federal Energy Regulatory Commission MVS/JES              |
| GSYSTEM  | Hanford VM System, Richland, Washington                   |
| HSYSTEM  | Hanford MVS System, Richland, Washington                  |
| INELDOE  | Idaho Operations Office, Idaho Falls                      |
| INELMVS1 | Idaho National Engineering Laboratory, Idaho Falls        |
| INELVM1  | Idaho National Engineering Laboratory, Idaho Falls        |
| INELWIN1 | INEL WINCO Contractor, Idaho Falls                        |
| NRCVM1   | Nuclear Regulatory Commission (Bethesda) (via INEL)       |
| NRCVM2   | Nuclear Regulatory Commission (Bethesda) (via INEL)       |
| OAKRIDGE | Oak Ridge Martin Marietta All-in-One                      |
| PO       | West Valley Nuclear (Westinghouse) VM                     |
| SASRS3   | Savannah River Soft-Switch All-in-One System              |
| SLSRP1   | Savannah River Soft-Switch All-in-One System              |
| SPRMVS   | Strategic Petroleum Reserve Office (SPRO) MVS System      |
| TEST     | DOE PROFS--Testing New Releases                           |
| VM3090   | Savannah River VM and PROFS                               |
| VSJES3   | Savannah River MVS/XA                                     |

**FDDI STATUS**

CTD is pleased to announce that Laboratory management has approved the Laboratory-wide, fiber-optic cable plant, and it is moving forward. Early estimates are that the cable will be procured, installed, and certified by early fall 1992. Divisions will be able to connect to the cable plant after that time.

This cable plant will be a multipurpose data and video transmission infrastructure. We plan to install a combination of general-purpose multi-mode cable and high-performance single-mode cable. The plant will interconnect Buildings 200, 201, 202, 203, 205, 206, 207, 208, 211, 221, 222, 223, 301, 302, 308,

310, 330, 335, and 360. Buildings 212, 213, 214, and the Advanced Photon Source (APS) already have fiber-optic cable and will be integrated into this new fiber-optic cable plant.

CTD is available to assist divisions in planning for connections to the Laboratory-wide fiber network, to plan fiber-optic divisional networks, and to install these networks. For more information about these services, contact the CTD Computer Network Section at extension 2-4360.



## ISDN NOT YET AVAILABLE TO ARGONNE

CTD has been discussing with Illinois Bell Telephone (IBT) the schedule for providing the Integrated Services Digital Network (ISDN) to Argonne. ISDN is a new technology being deployed worldwide that allows integrated voice, data, and image communications on two 64 kilobit per second full-duplex channels. An ISDN channel can connect to any other ISDN channel through any carrier that is fully digital, compatible, and offers the service. It thus provides point-to-point connections similar to a telephone connection and can be established in a few seconds.

Scientists at Argonne have inquired about ISDN for use from their home to reach computers at the Laboratory and on the ISDN network. In the Argonne area, some places have ISDN (for example, the Downers Grove central office). Other sites with Centrex service are purchasing ISDN for intra-site communications. ISDN is not available for general use yet, and the IBT schedule for installing ISDN is not complete.

At present, Argonne is the only site serviced by the Lemont central office that has requested information on ISDN. IBT requires a long-term contract before ISDN is installed. Currently, the Lemont central office is not being considered for ISDN. Argonne has talked to IBT about installing its own ISDN link to the Downers Grove central office and has found that a private link is prohibitively expensive.

In summary, CTD will continue to follow the progress being made on ISDN availability. CTD will again review the ISDN capability for the Laboratory when the Lemont central office is put on the IBT schedule for ISDN installation.

## UNIX NEWS

### USING DECWINDOWS FONTS ON UNIX WORKSTATIONS

When you use the DECwindows software (such as Bookreader) on the Argonne central VAX cluster with other X11 servers on Unix platforms, all the fonts needed for the operation of the DEC clients may not be available. This situation could result in

(1) non-execution by the client, (2) unexpected crashes, and (3) X server errors.

The most common error occurs when you start the client. The error is printed to the terminal window from which the client was run and may look like this:

```
X Toolkit Warning: Cannot convert string
"--MENU-MEDIUM-R-Normal--*-120--*-P
--ISO8859-1" to type FontList, using fixed font
```

This message may be followed by another message with other errors, and the client may crash or continue to run and crash at a later time.

To remedy this situation and to allow the DEC clients to display properly on your Unix workstation, you need to emulate the needed DECwindows fonts with X11 fonts that are already available on your system by using a fonts alias file. The file on the central VAX cluster in the SYS\_PUBLIC directory called XWINDOWS-FONTS.ALIAS should be appended to the fonts.alias file in the font path of your X server.

To find your current font path, use the xset command on the server:

```
%xset q
```

Your fonts.alias file will be in the xxx/fonts/misc directory. You can use the ftp command to get the file from the VAX; add it to the end of your current fonts.alias with the cat command:

```
%cat fonts.alias dec_fonts.alias > font.alias.temp
%mv font.alias.temp fonts.alias
```

Make sure you have the appropriate file access for the above procedure or contact your system administrator to implement the change.

For help, call Mike Gomberg at extension 2-5405.

## VAX/VMS NEWS

### VMS 5.5 UPGRADE PLANNED

CTD plans to install the VMS 5.5 upgrade on Saturday, May 16, 1992, on the Argonne central VAX cluster. The Saturday upgrade was chosen to minimize the impact on interactive users of the system. Both VAX cluster members, the general-purpose VAX 6410 (ANLCV1), and the Argonne Information Management (AIM) system VAX 8700 (ANLCV2) will be unavailable during this upgrade, which will begin at approximately 7:00 a.m. and continue to completion. For changes in the schedule, call the Current System Status Recorded Message (extension 2-5466).

The VMS 5.5 upgrade is necessary to enable CTD to install and make available the POSIX system. POSIX, a component of Open VMS, is the third step for our VMS system in the direction of Open Systems, which are often associated with Unix-style systems. VMS 5.5 incorporates a new batch and print system that has improved performance for larger clusters. VMS 5.5 is also necessary to permit installation of a new VAXstation 4000 VLC into the cluster that we are acquiring for testing. The VAXstation will be used both in stand-alone mode and as part of the cluster.

To learn more about the new features of VMS 5.5, when logged into the VAX cluster, enter (at the prompt):

HELP V55

### VMS SYSTEM ADMINISTRATION EXPERIENCES

For the last few years, CTD has performed VAX/VMS system administration services for several Argonne divisions. The services have ranged from one-time installations of specific applications to ongoing maintenance efforts involving numerous applications and the base VMS operating system.

Examples of the work CTD has performed include the installation of TGV's MultiNet product in Materials Science to provide the Transmission Control Protocol/Internet Protocol (TCP/IP) capability and to assist Environmental Assessment and

Information Sciences with its Ingres database system. We also install and maintain the Argonne Network Job Entry (NJE) software on several Argonne VAX systems. Recently, CTD installed VMS 5.5 on a VAX cluster for the Biological and Medical Research Division and the PCSA (Pathworks) product for Media Services.

Typically, CTD has provided VMS system administration services via service requests, and the services provided have been based on short-term customer needs. Recently, however, we have undertaken a fixed-fee monthly administration plan where CTD personnel are onsite at the local division one or more days per week.

For example, a fixed-fee administration plan providing one day per week of onsite coverage (as well as prime shift emergency coverage, when necessary) is \$1,900 per month. Although this charge characterizes an existing arrangement, the administration's plans are often adapted to a local organization's needs. Users or divisions interested in VMS system administration services should contact John Volmer at electronic mail address b32831@achilles.ctd.anl.gov or at (708) 252-5449.

### ELECTRONICS PROVIDES DEC COMPUTER SYSTEMS SERVICES

Electronics continues to provide hardware and software services for the Laboratory's Digital Equipment Corporation (DEC) computer systems. The Service Group provides hardware and software installation, operation, and maintenance services as well as procurement assistance for MicroVAX IIs, MicroVAX IIIs, VAXstation 3100s, and the DECstation 5000/200. Electronics also maintains all models of the PDP-11 line of systems. In FY1993, the Service Group will offer full services for the VAXstation 4000 Model 60 and VLC.

You can arrange for services through either a time and material or service contract. Currently, the Service Group provides hardware maintenance contracts for most of the MicroVAXes onsite. This service is available by factory-trained personnel. During normal working hours, the response time is two hours. After-hours service options are available. Electronics maintains a large inventory of spare parts and systems, thereby allowing the repair of a system with a minimum of downtime.



Electronics can also provide consultation and assistance in purchasing and setting up new systems and peripherals. For information on DEC services, call Martin Kroll at extension 2-6969.

## **BITS & BYTES**

### **RECENTLY UPDATED AND PUBLISHED DOCUMENTS**

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### **Computing and Telecommunications Documents**

*Investigation of GOSIP Technology at ANL* (ANL/TM 499) describes testing of Open Systems Interconnection (OSI) products conducted at Argonne National Laboratory. Argonne used Sun, IBM, and Cisco hardware platforms and evaluated various software packages that implement file transfer and gateway applications. This document briefly discusses the OSI model and Government Open Systems Interconnection Profile (GOSIP) compliance and presents technical details on OSI addressing and routing. This document discusses the relationship of this testing to other OSI activities at Argonne and to activities of the national networking community. Also mentioned is the relationship of DECnet Phase V transition issues.

*Network Access to CICS: Full Screen Terminal or ASCII Terminal* (March 1992) describes how you can access the Customer Information Control System (CICS) with your full-screen or ASCII terminal. This brochure supersedes the December 1988 brochure.

*A Plan for Administrative Computing at ANL FY1992 through FY1994* (ANL/TM 489) identifies the components of administrative computing at ANL, provides guidelines for development of new or enhanced systems, and outlines the procedures by which management determines the structure and

organization of administrative computing systems. This document proceeds from the premise that administrative information is a Laboratory asset; therefore, the Laboratory must know the quality, characteristics, availability, costs, and location of information as it would any other asset. This document incorporates detailed summaries of specific projects proposed for the three-year span and broader recommendations for the course of administrative computing development over a ten-year span. This document includes a listing of all known administrative computing systems in use onsite. Charts of expenditures for both user-funded and Laboratory-funded systems provide a complete statement of the Laboratory's financial commitment to administrative computing.

#### **Other Vendor Documents**

*Disinfectant v2.8* is a 3 1/2-inch diskette for the Apple Macintosh computers that can detect and cure the following viruses: Scores, nVIR, INIT 29, ANTI, MacMag, WDEF, ZUC, MDEF, Frankie, CDEF, MBDF, INIT 1984, and CODE 252.

## **BULLETIN**

### **BULLETIN OF APRIL 27, 1992**

#### **CRAY RATE EXPERIMENT TO END**

Since February 14, 1992, CTD has conducted an experiment by lowering Cray charges to determine if the Cray computer charges have been limiting the demand for Cray computer time. Although the experiment did increase Cray utilization slightly, it did not sufficiently increase revenues. During the past three weeks, utilization has, in fact, dropped to pre-experiment levels, and revenue has been reduced. Effective April 30, 1992, the Cray interactive and batch rates will return to those published in the most recent *Computing and Telecommunications Division Rates* (December 2, 1991) to try to stabilize recovery. The class Z batch queue will no longer be available.

However, effective April 30, 1992, CTD will increase the CPU time limit for all Cray batch jobs and interactive processes from 3 hours to 12 hours. Users may continue to submit large memory jobs of up to 6 megawords at any time.



Users with questions or special requirements should contact the CTD User Services consultants at extension 2-5405.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD APRIL 7, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:05 p.m.

**Output Services--What's New and How To Get There.** Mike Thommes (Computing and Telecommunications) reported on the use of the color PostScript Seiko printer since its introduction in February 1992. There have been about 1,200 jobs processed that have created 2,600 pages of output. The border around the page is like the Apple LaserWriter, about a quarter of an inch.

Jerry Davison (Computing and Telecommunications) continued the presentation with a discussion of the new queues established for the CalComp plotter and the Matrix camera devices (see the two articles in the April 1992 *Newsletter*). A production test will take place during April 1992 to test these devices and the PostScript input interfaces to them. If an evaluation of the test period is favorable, CTD will switch the CalComp plotter and the Matrix camera to PostScript permanently.

The new queues on the VAX (anlcv1.ctd.anl.gov) are ANLSLIDE for color PostScript output to the Matrix slide camera, ANLCC for color PostScript output to the CalComp, and ANLCCBW for black-and-white PostScript output to the CalComp. The plots are generated with the 35 Apple LaserWriter PostScript hardware character fonts.

Many applications still do not allow large PostScript page sizes. It may be difficult to find page sizes larger than 11-by-17 inches. Experimental Apple LaserWriter printer drivers are available on the Public AppleTalk public disk volume for the generation of slides and large CalComp plots. Work is still necessary for PostScript output files with large page sizes from IBM Personal Computers and mainframe graphics software. CTD is developing

software to address each of these areas and is working with Computer Associates and SAS Institute to solve these problems in their graphics software.

Jerry mentioned several areas users should be aware of when using the PostScript devices. The default page background is white. Also, the way PostScript uses the x and y coordinates must be considered. If the application allows both portrait and landscape output, things are probably working in a consistent manner. Also, the x and y coordinates for PostScript plots may be opposite to those in the mainframe graphics packages. Applications on IBM PC and Apple Macintosh personal computers that produce PostScript output will provide what the user expects. When using the `lpr` command to send output to the devices, the first two characters must be "%!" in the file. Also, all PostScript font and procedure definitions must be included in each PostScript file sent to the above queues, since the PostScript processor does not save these definitions. This is especially critical on an Apple Macintosh where the laserprep and the Apple Macintosh definition files must be included.

CTD is looking into higher speed PostScript output devices. This is to provide 3800-type output with the capability of printing graphics as part of the continuous output.

**MVS Disk Replacement Status.** John Volmer (Computing and Telecommunications) reported on the status of the MVS disk replacement. The movement is partially complete. Of the ten PER7nn volumes, six have been moved and four merged with others. Approximately 120 datasets remain. These datasets require special handling by the user or CTD. In the move, several other modifications were made. When the scratch volumes were moved, the pool was expanded by about 25 percent. CTD has consolidated the JES3 spool from four disks to two disks, since the new volumes are twice as large as the old disks.

Later in this meeting, Bert Toppel described a problem with MVS system response time thought to be caused by a change in how IFS month-end reporting jobs were submitted to the system. (See "IFS Month-End Reporting--How It's Done" in this *Newsletter*.) This assumption was later found to be incorrect. The submission rate had not changed. The problem was later attributed to a combination of normal IFS job submission and the reduction of the number of JES3 spool access arms from four to two.

The correction implemented is for the submission rate of IFS jobs to be reduced, thereby allowing more time for the read/write arms to position themselves and for the operators to have additional control to pause. The submission of IFS jobs appears to be delaying other work.

**Cray Status and Future.** John continued with a review of initiatives taken to increase the utilization of the Cray (see "Results of the Cray Rate Experiment" in this *Newsletter*). These initiatives included the establishment of a class z (\$75 per hour), the increase of the time-and-memory limits of all classes, and the reduction of interactive and class u rates to be equivalent to class w. The average utilization has increased to 25 percent (versus 11 percent in the prior three weeks), but there has been virtually no change in revenue. Full cost recovery requires a 50 percent utilization at an average of \$300 per hour. Much of the class y work has shifted to class z. Since the usage has increased and the revenue is not adversely affected, the rate structure will continue.

Pat Garner continued with a summary of the efforts undertaken to assess the impact on the user community if the Cray were discontinued. This action item came out of the March 4, 1992, Computing Policy Committee (CPC) meeting. Historically, when a centrally provided computing service is to be discontinued without a replacement, the users have been warned and assisted by CTD in the transition.

Several meetings have been held with the general user community and specific divisions to determine the needs of the user community and to address their concerns. Some users are not concerned because they are computing free at other locations, the Cray is not large enough to do their work, or they need a true supercomputer. Others expressed concern for the loss of CPU capacity, the future readability of Cray binary format data files, the loss of a central Network File System (NFS) /n2, and the loss of the link between the IBM/MVS and other distributed computer systems.

The costs of getting off the Cray could be substantial, including the loss of file back-ups (a QA requirement in most programs), the loss of centralized consulting, the effort needed to convert coding, longer job turnaround, and increased traffic on the sitewide network. Those needing Cray-type computing expressed concern about what will happen when offsite free computing is removed, where Cray

time could be purchased, and how to access the local peripherals from offsite hosts.

There were also concerns expressed of a more generic variety. Up-to-date computing is necessary to maintain competitiveness. The use of floors may have both driven people away from the Cray and artificially increased its usage to the point that users with jobs with low megaflop ratings were asked to find other places to run their jobs. There also seems to be a discrepancy between the value placed on the Cray by the users and by management.

CTD will address the specific concerns raised and will report back to the CPC. User issues are known, but not yet solved. If other concerns arise, let John Volmer (extension 2-5449) or Pat Garner (extension 2-4872) know. It is anticipated that there would be at least two months notice before the Cray would be turned off.

**Fiber Distributed Data Interface (FDDI) Planning.** Bob McMahon (Computing and Telecommunications) reported on the latest developments in the fiber-optic cable plant (see "FDDI Status" in this *Newsletter*). The current plan is to install the cabling to all sites in the August to October 1992 time frame, splitting the cost over two fiscal years. Tim Kuhfuss (Computing and Telecommunications) will be the project manager for design and Jug Uppal (Plant Facilities and Services) will be the project manager for environment, safety, and health; installation; and review.

**Video Conferencing.** Paul Phillips (Computing and Telecommunications) reported on the installation and use of a video teleconferencing system installed in Building 362 as part of the High Energy Physics (HEP) Video Teleconference System. With collaboration among HEP scientists in many parts of the world, this system allows personal interaction and group meetings without the time and expense of travel. The system in Building 362 is linked to a video bridge at Fermi. A video bridge is also located at the Superconducting Super Collider. They are connected together via a T-1 link (1.544 megabits per second). Usage to date is usually through regularly pre-scheduled meetings among collaborators. The system is just short of real-time motion, allows for two monitors to be used, and has worked very well to date.



**CPC Meeting Report.** Pat Garner reported on the meetings of the CPC on March 4, 1992, and April 3, 1992. A Personal Computer Local Area Network Review (PCLANR) Subcommittee of the CPC will be established to develop guidelines for new LAN procurements. Requisitioners of new network systems will have to prepare a network access plan describing how the proposed system meets these guidelines and to submit this to the PCLANR Subcommittee at the same time as the requisition. The network access plan must be approved for the requisition to proceed.

CTD cost recovery continued to lag behind expenses, with the costs greater than the recovery by \$238,000 for October 1992 through February 1992. The initial three weeks with class z at \$75 per hour resulted in a slight increase in usage (to about 25 hours per week) but a slight decrease in income (\$5,000 to \$6,000 per week). CTD was allowed to continue class z and to make other adjustments to encourage usage, as long as the changes did not significantly accelerate the losses. The Cray options being considered are to shut down before the end of FY1992, to continue as is, to continue on a cost-slowdown basis, or to replace the Cray X-MP with a Cray Y-MP/EL. CTD will discuss the impact of a shutdown with the users and will report to the CPC.

The FDDI schedule was discussed with Joe Asbury and Jim O'Kelley to encourage the Management Council to reconsider the current plan that spreads this work out over three fiscal years.

Sections of the draft ANL-E QA manual on software will be replaced with a more general statement of policy. CTD will prepare a software management program. Divisions will use this program to write specific QA procedures. CTD has hired a program manager for the Software Management Program. The structure should be similar to the Computer Protection Program, with some overlap of these two programs. The Software Management Program Manager will begin developing the policy statement.

The Computer Users Group normally meets on the first Tuesday of each month at 3:00 p.m. in Building 221, Room A-216. Contact Pat Garner (extension 2-4872) or Ken Miles (extension 2-3095) to be placed on the distribution list for meeting announcements or for additional information.

The CUG meeting adjourned at 4:58 p.m.

Ken Miles, CUG Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD APRIL 15, 1992**

Dave Lifka (Computing and Telecommunications) opened the meeting for Bob Kampwirth at 11:10 a.m. in Building 221, Room A-216.

Mike Check and Eric Keller (both with Bimillennium, 313/344-9940, Novi, Michigan, sales office) gave a demonstration of HiQ, an integrated analysis system with over 500 functions built into its project notebook interface. These functions include trigonometric, transcendental, orthogonal polynomials, integral formula, derivative formula, polynomial, series, geometric, matrix, eigenvalue, and Fourier analysis. HiQ has many graphing capabilities (including 3-dimensional graphing with rotation and movie features). It also has its own programming language. One can incorporate each feature in a notebook design as is, as an icon, or entirely hidden. Other features include the ability to handle real, integer, and complex numbers; primitive word processors; global variables; and script generation using menus. This program is the Swiss Army knife of Apple Macintosh software programs. The program ran very fast on the Apple Macintosh IIfx used to demonstrate it.

Dave Brannon (LaCie Limited) was to demonstrate the LaCie hard drives, portable drives, tape drives, optical drives, and scanners. However, he arrived too late to make a presentation. Dave agreed to come back another time. Mike Check said that he uses the 40 megabyte LaCie portable hard drive and that it travels very well.

Jerry Davison (Computing and Telecommunications) talked about the new PostScript output capabilities for slides and CalComp plots. Free testing of this process is available during April 1992. Details are in the April 1992 *Newsletter*. The Apple Macintosh part of the test is working well; the mainframe part of the test still needs work. The drivers that one needs to use these devices are available in the ANL Public Devices folder of the Public Volume in the Public AppleTalk zone. The slide driver is Slides.1 in the anlslide folder. The page size must be 7-1/3 by 11, which is the only choice when you select this driver. The CalComp plotter is 36 inches wide with continuous paper and is available in black and white or color. The plot sizes are D (22x34), E (34x44), 2E (34x88), and 3E (34x132).

Jerry showed a 51-inch project management chart with the critical path in red, which was printed



out from MacProject II. The CalComp driver is the CalCompDE file in the anlcc/anlccbw folder. The drivers work fine under System 7.0. Under System 6.0, one cannot see all the network devices.

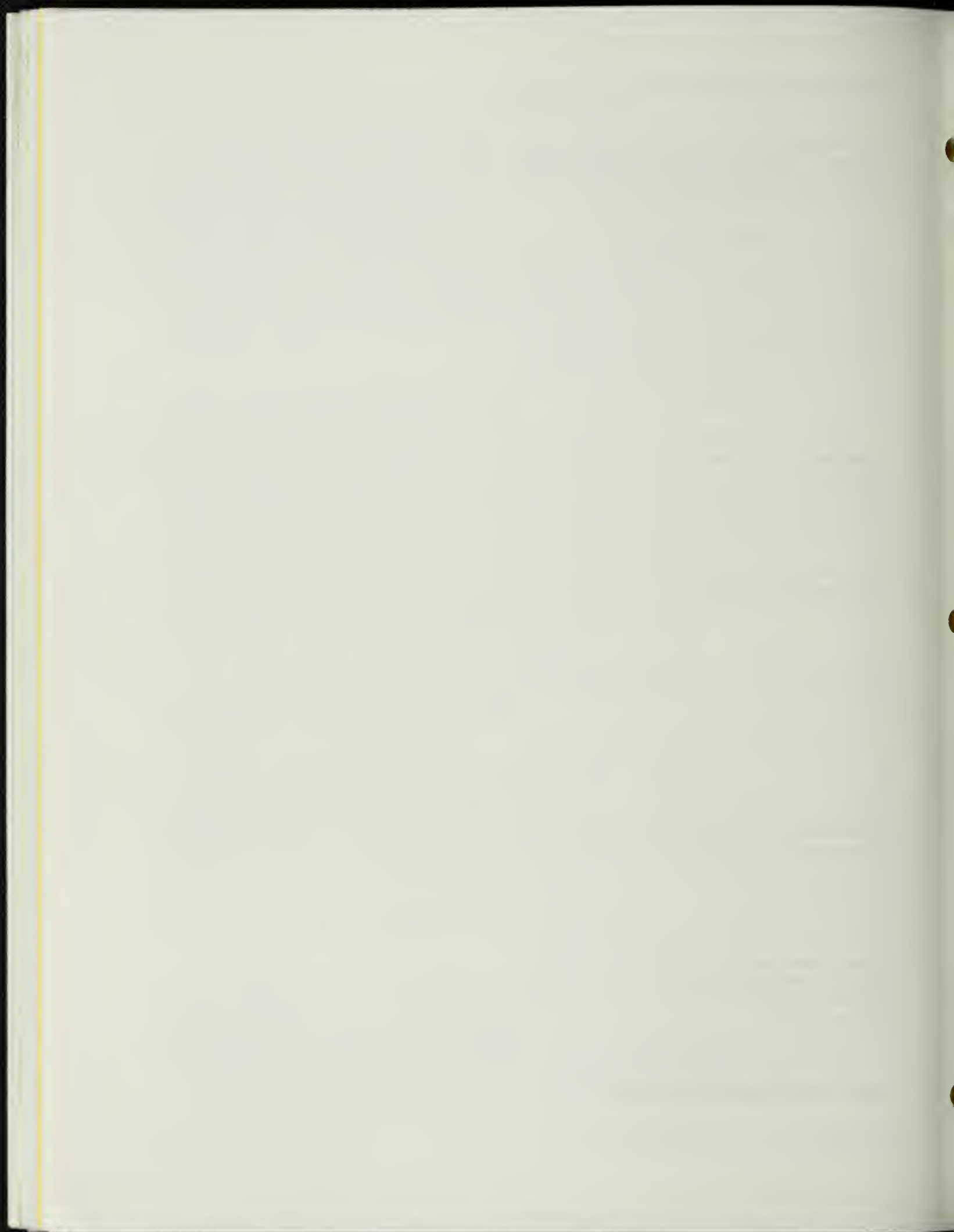
The color transparencies that Jerry used for his talk were made by using MacDraw Pro and were printed on the CTD Seiko ColorPoint PostScript printer for color transparencies. The output service name is ANLCLRT1. It is a fully functioning unit, not part of the test program. For color prints using this printer, the output service name is ANLCLRP1. The drivers for this printer are in the CTD Seiko ColorPoint Printer folder, which is in the ANL Public Devices folder of the Public Volume.

Ralph Leonard (Chemical Technology) reported on an excellent article about the conversion between various word processing programs that include text, italics, boldface, subscripts, superscripts, Greek letters, equations, and tables. Several conversion utilities were also evaluated. The article discussed PC-to-PC conversions, Mac-to-Mac conversions, PC-to-Mac conversions, and Mac-to-PC conversions. This article appeared in the March 1992 issue of *Chemical Engineering Progress*, pages 100 to 107. Roy V. Hughson, the author, is the software editor for that journal. They work in an Apple Macintosh environment because of the excellent graphics capabilities, even though they get many of their manuscripts in PC formats.

The Macintosh Users Group normally meets on the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Media Services), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at QuickMail address lee\_wagar@qmgate.anl.gov or at extension 2-5603.

The meeting adjourned at 12:30 p.m.

Ralph Leonard, Macintosh Users Group Secretary



# WORKLOAD STATISTICS (FEBRUARY 28 THROUGH MARCH 30, 1992)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,206              | 1,209        | 431                 |
| Wylbur      | 1,548              | 1,541        | 280                 |
| MVS TSO     | 57                 | 57           | 19                  |
| CICS        | 2,283              | 2,293        | 251                 |
| MVS Batch   | 2,283              | 2,293        | 609                 |
| VAX/VMS     | 668                | 673          | 193                 |
| Cray        | 359                | 357          | 99                  |
| Unix        | 121                | 137          | *                   |
| All Systems | 2,283              | 2,293        | 951                 |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |       |         |        | SESSION TIME (HRS) | CPU TIME (HRS) |
|--------------------|--------------------------------|-------|---------|--------|--------------------|----------------|
|                    | PRIME                          | NIGHT | WEEKEND | TOTAL  |                    |                |
| <b>INTERACTIVE</b> |                                |       |         |        |                    |                |
| CMS                | 10,968                         | 2,759 | 2,334   | 16,061 | 42,063             | 96.11          |
| Wylbur             | 5,524                          | 197   | 266     | 5,987  | 5,931              | 4.63           |
| MVS TSO            | 695                            | 10    | 3       | 708    | 745                | 2.36           |
| CICS               | *                              | *     | *       | *      | *                  | *              |
| VAX/VMS            | 10,265                         | 4,649 | 4,336   | 19,250 | 33,455             | 121.00         |
| Cray               | 429                            | 9     | 26      | 464    | 547                | 178.36         |
| <b>IBM BATCH</b>   |                                |       |         |        |                    |                |
| Class U            | 8,299                          | 1,716 | 1,185   | 11,200 | **                 | 20.48          |
| Class W            | 17,812                         | 3,474 | 743     | 22,029 | **                 | 131.21         |
| Class X            | 5                              | 676   | 43      | 724    | **                 | 26.78          |
| Class Y            | 0                              | 0     | 172     | 172    | **                 | 8.21           |
| Nonmain            | 15,904                         | 2,147 | 1,418   | 19,469 | **                 | 0.00           |
| Total              | 42,020                         | 8,013 | 3,561   | 53,594 | **                 | 186.68         |
| <b>CRAY BATCH</b>  |                                |       |         |        |                    |                |
| u                  | 429                            | 29    | 26      | 484    | **                 | 0.38           |
| w                  | 1,159                          | 9     | 115     | 1,283  | **                 | 1.98           |
| x                  | 1,096                          | 56    | 204     | 1,356  | **                 | 7.72           |
| y                  | 1,819                          | 81    | 130     | 2,030  | **                 | 23.34          |
| Total              | 4,503                          | 175   | 475     | 5,153  | **                 | 33.42          |
| <b>VMS BATCH</b>   |                                |       |         |        |                    |                |
| W BATCH            | 57                             | 370   | 102     | 529    | **                 | 13.35          |
| X BATCH            | 1                              | 51    | 13      | 65     | **                 | 19.61          |
| Y BATCH            | 0                              | 0     | 1       | 1      | **                 | 0.00           |
| Total              | 58                             | 421   | 116     | 595    | **                 | 32.96          |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               |            |
| Local                       | 56,632,142 |
| Remote                      | 52,571,919 |
| Fiche                       | 36,355,531 |
| Tape Mounts                 | 7,404      |
| Microfiche Developed        | 4,766      |
| Microfiche Frames Developed | 812,688    |

## GRAPHICS

|                   | # OF JOBS | # OF FRAMES |
|-------------------|-----------|-------------|
| CalComp Jobs      | 53        | **          |
| Matrix 35mm Color | 28        | 123         |
| Matrix-8 x 10     | 0         | 0           |
| Matrix-Negative   | 0         | 0           |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 24,278 |
| Round Tapes Saved           | 124    |
| Round Tapes Released        | 158    |
| Cartridges Saved            | 1,285  |
| Cartridges Released         | 1,139  |
| Datasets Exported to Tape   | 1,033  |
| Datasets Imported from Tape | 469    |

\* not available  
 \*\* not applicable



**AVAILABILITY STATISTICS, BY MACHINE (FEBRUARY 28 THROUGH MARCH 30, 1992)**

|                                    | Monthly<br>Totals | Hardware | Scheduled<br>Software | Other | Hardware | Unscheduled<br>Software | Other |
|------------------------------------|-------------------|----------|-----------------------|-------|----------|-------------------------|-------|
| <b>CMS</b>                         |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 4.00              | 0.00     | 3.00                  | 1.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 34.45             | 0.00     | 3.95                  | 30.50 | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 1.00              | 0.00     | 0.00                  | 1.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 30.50             | 0.00     | 0.00                  | 30.50 | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| <b>WYLBUR</b>                      |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 11.00             | 0.00     | 7.00                  | 1.00  | 1.00     | 2.00                    | 0.00  |
| Hrs Unavailable                    | 49.38             | 0.00     | 13.20                 | 31.46 | 3.78     | 0.93                    | 0.00  |
| MTF/Unscheduled                    | 247.53            |          |                       |       | 742.61   | 371.30                  |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 3.00              | 0.00     | 0.00                  | 1.00  | 0.00     | 2.00                    | 0.00  |
| Hrs Unavailable                    | 32.40             | 0.00     | 0.00                  | 31.46 | 0.00     | 0.93                    | 0.00  |
| MTF/Unscheduled                    | 121.80            |          |                       |       |          | 121.80                  |       |
| <b>MVS TSO</b>                     |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 10.00             | 0.00     | 6.00                  | 1.00  | 1.00     | 2.00                    | 0.00  |
| Hrs Unavailable                    | 49.30             | 0.00     | 13.11                 | 31.46 | 3.78     | 0.93                    | 0.00  |
| MTF/Unscheduled                    | 247.56            |          |                       |       | 742.70   | 371.35                  |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 3.00              | 0.00     | 0.00                  | 1.00  | 0.00     | 2.00                    | 0.00  |
| Hrs Unavailable                    | 32.40             | 0.00     | 0.00                  | 31.46 | 0.00     | 0.93                    | 0.00  |
| MTF/Unscheduled                    | 121.80            |          |                       |       |          | 121.80                  |       |
| <b>JES3</b>                        |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 10.00             | 0.00     | 6.00                  | 1.00  | 1.00     | 2.00                    | 0.00  |
| Hrs Unavailable                    | 45.58             | 0.00     | 9.61                  | 31.46 | 3.65     | 0.85                    | 0.00  |
| MTF/Unscheduled                    | 248.80            |          |                       |       | 746.41   | 373.20                  |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 3.00              | 0.00     | 0.00                  | 1.00  | 0.00     | 2.00                    | 0.00  |
| Hrs Unavailable                    | 32.31             | 0.00     | 0.00                  | 31.46 | 0.00     | 0.85                    | 0.00  |
| MTF/Unscheduled                    | 121.84            |          |                       |       |          | 121.84                  |       |
| <b>CICS</b>                        |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 2.00              | 0.00     | 0.00                  | 0.00  | 1.00     | 1.00                    | 0.00  |
| Hrs Unavailable                    | 4.28              | 0.00     | 0.00                  | 0.00  | 3.78     | 0.50                    | 0.00  |
| MTF/Unscheduled                    | 393.85            |          |                       |       | 787.71   | 787.71                  |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 1.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                    | 0.50              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.50                    | 0.00  |
| MTF/Unscheduled                    | 275.50            |          |                       |       |          | 275.50                  |       |
| <b>VAX/VMS (VAX 8700)</b>          |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 2.00              | 0.00     | 1.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 1.63              | 0.00     | 0.75                  | 0.00  | 0.88     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 790.36            |          |                       |       | 790.36   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| <b>VAX/VMS (VAX 6410)</b>          |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 3.00              | 0.00     | 3.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 1.98              | 0.00     | 1.98                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| <b>CRAY</b>                        |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 5.00              | 4.00     | 0.00                  | 1.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 46.00             | 12.13    | 0.00                  | 33.86 | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 1.00              | 0.00     | 0.00                  | 1.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 33.86             | 0.00     | 0.00                  | 33.86 | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (FEBRUARY 28 THROUGH MARCH 30, 1992)

| CC                                             | CCNAME                            | IBM      | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|------------------------------------------------|-----------------------------------|----------|----------|----------|----------|------------|-----------|
| ADVANCED PHOTON SOURCE                         |                                   |          |          |          |          |            |           |
| 131                                            | ACCELERATOR SYS DIV               | \$150    | \$1      | \$0      | \$19     | \$176      | \$346     |
| 132                                            | EXP FACIL DIV                     | \$118    | \$0      | \$0      | \$2      | \$132      | \$251     |
| 133                                            | APS PROJECT OFFICE                | \$0      | \$0      | \$0      | \$8      | \$0        | \$8       |
| 272                                            | ADVANCED PHOTON SOURCE            | \$70     | \$0      | \$0      | \$40     | \$29       | \$139     |
| 340                                            | APS ASD MANAGEMENT                | \$0      | \$0      | \$0      | \$0      | \$6,930    | \$6,930   |
| 341                                            | APS ACCELERATOR PHYSICS           | \$426    | \$2,487  | \$0      | \$35     | \$238      | \$3,186   |
| 342                                            | APS DIAGNOSTICS                   | \$3      | \$17     | \$0      | \$0      | \$117      | \$137     |
| 343                                            | APS LINAC                         | \$0      | \$74     | \$0      | \$0      | \$0        | \$74      |
| 344                                            | APS RF                            | \$3      | \$44     | \$0      | \$150    | \$227      | \$424     |
| 345                                            | APS VACUUM/MECHANICAL ENG.        | \$10     | \$2,503  | \$46     | \$84     | \$552      | \$3,195   |
| 347                                            | APS CONTROLS                      | \$55     | \$34     | \$0      | \$0      | \$6        | \$95      |
| 348                                            | APS MAGNETS                       | \$62     | \$2      | \$0      | \$388    | \$86       | \$538     |
| 349                                            | APS POWER SUPPLIES                | \$31     | \$10     | \$0      | \$0      | \$0        | \$31      |
| 350                                            | APS DIVISION MANAGEMENT           | \$0      | \$0      | \$0      | \$0      | \$0        | \$0       |
| 351                                            | APS INSERTION DEVICES             | \$52     | \$1,925  | \$0      | \$99     | \$788      | \$2,865   |
| 352                                            | APS ENGINEERED SYSTEMS            | \$74     | \$6,077  | \$0      | \$424    | \$2,590    | \$9,164   |
| 353                                            | APS BEAM LINE INSTRUMENTATION     | \$18     | \$1,039  | \$0      | \$82     | \$135      | \$1,274   |
| 360                                            | APS CONVENTIONAL FACILITIES       | \$6      | \$0      | \$0      | \$0      | \$20       | \$26      |
| 361                                            | APS PROJECT DIRECTION             | \$94     | \$20     | \$0      | \$318    | \$377      | \$809     |
| 362                                            | APS MANAGEMENT GENERAL            | \$16     | \$0      | \$0      | \$0      | \$22       | \$38      |
| SUBTOTAL                                       |                                   | \$1,187  | \$14,233 | \$47     | \$1,649  | \$12,425   | \$29,541  |
| ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH |                                   |          |          |          |          |            |           |
| 110                                            | BIO & MED RES DIV                 | \$589    | \$2,521  | \$90     | \$767    | \$908      | \$4,875   |
| 125                                            | TECHNOLOGY TRANSFER CENTER        | \$75     | \$16     | \$0      | \$17     | \$117      | \$226     |
| 149                                            | ENVIRONMENTAL RESEARCH DIV        | \$2,047  | \$250    | \$92     | \$818    | \$822      | \$4,029   |
| 155                                            | ENERGY SYSTEMS DIVISION           | \$2,485  | \$5,474  | \$3,974  | \$930    | \$780      | \$13,643  |
| 165                                            | ENV ASSESS & INFO SCI DIV         | \$2,655  | \$5,040  | \$3,082  | \$367    | \$2,619    | \$13,762  |
| 246                                            | ES-NAT'L ENERGY SOFTWARE CTR      | \$5      | \$0      | \$0      | \$154    | \$0        | \$160     |
| 274                                            | ENER/ENV/BIO RES PROG ADM         | \$100    | \$0      | \$0      | \$1      | \$346      | \$448     |
| SUBTOTAL                                       |                                   | \$7,957  | \$13,302 | \$7,238  | \$3,054  | \$5,591    | \$37,143  |
| ENGINEERING RESEARCH                           |                                   |          |          |          |          |            |           |
| 102                                            | EBR-II PROJECT-ANL WEST           | \$1,723  | \$16     | \$725    | \$2,238  | \$300      | \$5,003   |
| 104                                            | FUELS AND PROCESSES DIVISION      | \$1,651  | \$165    | \$22     | \$475    | \$325      | \$2,638   |
| 107                                            | CHEMICAL TECHNOLOGY DIVISION      | \$992    | \$167    | \$86     | \$669    | \$1,261    | \$3,174   |
| 112                                            | REACTOR ENGINEERING DIVISION      | \$3,043  | \$1,069  | \$980    | \$1,091  | \$2,035    | \$8,218   |
| 114                                            | MATLS & COMP TECH DIV             | \$7,050  | \$5,502  | \$461    | \$829    | \$2,771    | \$16,614  |
| 115                                            | ENGINEERING PHYSICS DIVISION      | \$3,510  | \$1,847  | \$892    | \$1,811  | \$4,397    | \$12,457  |
| 116                                            | REACTOR ANALYSIS DIVISION         | \$40,383 | \$4,847  | \$33,313 | \$11,613 | \$10,730   | \$100,886 |
| 117                                            | ENGINEERING PHYSICS ANL-WEST      | \$2,305  | \$183    | \$324    | \$142    | \$2,466    | \$4,899   |
| 118                                            | FUEL CYCLE DIVISION               | \$1,660  | \$3,016  | \$4      | \$181    | \$319      | \$5,179   |
| 171                                            | ENG RES PROG DIR                  | \$6      | \$0      | \$0      | \$0      | \$106      | \$113     |
| 197                                            | SPECIAL PROJECTS OFFICE           | \$474    | \$7      | \$0      | \$24     | \$207      | \$712     |
| 211                                            | ENGR PHYS DIV - DESIGN ENGR       | \$23     | \$0      | \$0      | \$17     | \$105      | \$145     |
| 269                                            | ANALYTICAL CHEMISTRY LABORATORY   | \$145    | \$5      | \$0      | \$13     | \$155      | \$318     |
| 271                                            | ENG RES PROG ADMIN                | \$126    | \$0      | \$0      | \$13     | \$282      | \$422     |
| SUBTOTAL                                       |                                   | \$63,091 | \$16,824 | \$36,807 | \$19,116 | \$20,529   | \$156,367 |
| PHYSICAL RESEARCH                              |                                   |          |          |          |          |            |           |
| 105                                            | MATERIALS SCIENCE DIVISION        | \$481    | \$6,575  | \$340    | \$1,047  | \$516      | \$8,959   |
| 109                                            | PHYSICS DIV                       | \$1,941  | \$601    | \$25     | \$903    | \$454      | \$3,925   |
| 120                                            | CHEMISTRY DIV                     | \$2,837  | \$2,024  | \$1,352  | \$276    | \$592      | \$7,082   |
| 136                                            | INT PULSE NEUT SOURCE PROG        | \$100    | \$87     | \$40     | \$303    | \$230      | \$761     |
| 137                                            | HIGH ENERGY PHYSICS DIV           | \$503    | \$1,428  | \$321    | \$776    | \$835      | \$3,863   |
| 139                                            | DIV OF EDUCATIONAL PROGRAMS       | \$233    | \$0      | \$0      | \$87     | \$168      | \$488     |
| 145                                            | MATHAMATICS & COMPUTER SCI DIV    | \$225    | \$46     | \$235    | \$29     | \$4,860    | \$5,395   |
| 146                                            | CTD DIV - SCI APPL & RES          | \$79     | \$418    | \$686    | \$154    | \$-9,760   | \$-8,423  |
| 273                                            | PHYSICAL RESEARCH PROGRAM ADMIN   | \$59     | \$10     | \$0      | \$39     | \$113      | \$221     |
| SUBTOTAL                                       |                                   | \$6,459  | \$11,189 | \$3,000  | \$3,615  | \$-1,992   | \$22,271  |
| EXTERNAL                                       |                                   |          |          |          |          |            |           |
| 751                                            | FERMI NATIONAL LABORATORY         | \$642    | \$0      | \$0      | \$760    | \$538      | \$1,939   |
| 752                                            | NAVY                              | \$9,435  | \$0      | \$0      | \$1,021  | \$4,693    | \$15,149  |
| 753                                            | MORGANTOWN ENERGY TECH CENTER     | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 754                                            | DEPARTMENT OF ENERGY AT ANL       | \$0      | \$8      | \$0      | \$11     | \$0        | \$19      |
| 760                                            | ABBOTT LABORATORIES               | \$3      | \$0      | \$52     | \$0      | \$0        | \$55      |
| 763                                            | GENERAL ELECTRIC COMPANY          | \$0      | \$1      | \$0      | \$0      | \$0        | \$1       |
| 766                                            | BECHTEL NATIONAL, INC.            | \$0      | \$45     | \$11     | \$0      | \$0        | \$166     |
| 777                                            | UNIVERSITY OF CHICAGO AT ANL      | \$15     | \$0      | \$0      | \$152    | \$0        | \$167     |
| 778                                            | ARGONNE CREDIT UNION              | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 779                                            | UNIVERSITY OF ILLINOIS AT CHICAGO | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 780                                            | NEW BRUNSWICK LABORATORY          | \$13     | \$0      | \$0      | \$0      | \$0        | \$13      |
| 782                                            | PACKER ENGINEERING                | \$3      | \$25     | \$0      | \$0      | \$0        | \$29      |
| 783                                            | WEST VALLEY NUCLEAR SERVICES CO   | \$18     | \$0      | \$0      | \$0      | \$0        | \$18      |
| 784                                            | SSC LABORATORY                    | \$0      | \$56     | \$179    | \$0      | \$0        | \$235     |
| 787                                            | ILLINOIS INSTITUTE OF TECHNOLOGY  | \$0      | \$58     | \$0      | \$0      | \$0        | \$58      |
| 790                                            | GRUMANN AEROSPACE                 | \$0      | \$0      | \$0      | \$0      | \$0        | \$0       |
| 791                                            | LAWRENCE LIVERMORE                | \$0      | \$0      | \$0      | \$65     | \$0        | \$65      |
| SUBTOTAL                                       |                                   | \$10,148 | \$192    | \$242    | \$2,008  | \$5,232    | \$17,823  |

| CC  | CCNAME                               | IBM       | VAX        | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|-----|--------------------------------------|-----------|------------|----------|----------|------------|-----------|
|     |                                      |           | OPERATIONS |          |          |            |           |
| 143 | SUPP SERV DIV - ELEC DEPT            | \$209     | \$5        | \$0      | \$303    | \$988      | \$1,506   |
| 148 | HUMAN RESOURCES-MEDICAL DEPT         | \$3,344   | \$0        | \$0      | \$216    | \$662      | \$4,222   |
| 150 | SUPPORT SERV DIV - SPEC MATLS        | \$190     | \$0        | \$0      | \$23     | \$150      | \$364     |
| 161 | IPD-TECH INFO SERV                   | \$624     | \$44,901   | \$0      | \$9,686  | \$925      | \$56,136  |
| 201 | OFFICE OF THE DIRECTOR               | \$507     | \$0        | \$0      | \$141    | \$122      | \$771     |
| 202 | OFC OF CHIEF OPER OFCR               | \$18      | \$0        | \$0      | \$120    | \$101      | \$239     |
| 210 | SUPP SERV DIV - CENT SHOPS           | \$323     | \$0        | \$0      | \$82     | \$564      | \$968     |
| 216 | SUPPORT SERVICES DIVISION            | \$84      | \$0        | \$0      | \$9      | \$109      | \$202     |
| 222 | PLANT FAC & SERV-LODGING FAC         | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 232 | SUPPORT SERV DIV - SECURITY          | \$341     | \$0        | \$0      | \$6      | \$252      | \$599     |
| 234 | ESH DIV-HEALTH PHY                   | \$391     | \$516      | \$0      | \$656    | \$225      | \$1,788   |
| 235 | ESH DIV                              | \$1,185   | \$52       | \$0      | \$235    | \$419      | \$1,891   |
| 236 | ESH DIV-FIRE DEPT                    | \$6       | \$0        | \$0      | \$0      | \$101      | \$107     |
| 245 | COMPUTING AND TELECOM DIV            | \$30,607  | \$0        | \$0      | \$4,228  | \$4,079    | \$38,914  |
| 247 | COMP & TEL DIV - COM SERV            | \$2,063   | \$0        | \$0      | \$236    | \$1,289    | \$3,588   |
| 260 | IPD-MEDIA SERV DEPT                  | \$215     | \$1,190    | \$0      | \$51     | \$299      | \$1,755   |
| 265 | IPD-TECH COM SERV                    | \$7       | \$0        | \$0      | \$2      | \$0        | \$8       |
| 275 | OFFICE OF PUBLIC AFFAIRS             | \$464     | \$0        | \$0      | \$45     | \$154      | \$663     |
| 276 | OFC PUB AF - MOTN PIC UNIT           | \$41      | \$0        | \$0      | \$0      | \$14       | \$55      |
| 288 | INF & PUBL DIV                       | \$105     | \$808      | \$0      | \$10     | \$111      | \$1,034   |
| 296 | TELECOM COST/RECOVERY                | \$0       | \$0        | \$0      | \$65     | \$0        | \$65      |
| 315 | SUPP SERV DIV-MATLS & SERV           | \$4,834   | \$0        | \$0      | \$1,183  | \$659      | \$6,676   |
| 316 | PLANT FAC & SERV-VEH MAINT           | \$0       | \$0        | \$0      | \$0      | \$171      | \$171     |
| 317 | PLANT FAC & SERV-DRIVE/GRV SERV      | \$38      | \$0        | \$0      | \$2      | \$108      | \$148     |
| 319 | SUPP SERV DIV-TRAVEL OFC             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 322 | SUPP SERV DIV-PROCUREMENT            | \$42      | \$1        | \$0      | \$28     | \$103      | \$174     |
| 331 | EEO-INDIRECT                         | \$3       | \$0        | \$0      | \$0      | \$0        | \$3       |
| 333 | ENVIR SAFE HEALTH & QA OVERSIGH      | \$1,395   | \$30       | \$0      | \$174    | \$884      | \$2,483   |
| 336 | SUPP SERV DIV - INSPECTION           | \$15      | \$0        | \$0      | \$0      | \$2        | \$17      |
| 400 | OFC OF CHIEF FIN OFFICER             | \$43,132  | \$0        | \$0      | \$2,832  | \$11,363   | \$57,327  |
| 401 | ACCOUNTING                           | \$0       | \$0        | \$0      | \$4      | \$0        | \$4       |
| 403 | BUDGET OFFICE                        | \$2       | \$0        | \$0      | \$0      | \$0        | \$2       |
| 410 | HUMAN RESOURCES DEPARTMENT           | \$25,731  | \$0        | \$0      | \$1,570  | \$2,947    | \$30,248  |
| 412 | AFFIRM ACTION PROGRAM                | \$66      | \$0        | \$0      | \$45     | \$101      | \$211     |
| 501 | PLANT FAC & SERV-BLDG MAINT          | \$374     | \$0        | \$0      | \$48     | \$359      | \$781     |
| 502 | PLANT FAC & SERV-INSTALLATIONS       | \$27      | \$0        | \$0      | \$3      | \$155      | \$185     |
| 503 | PLANT FAC & SERV-GROUNDS             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 504 | PLANT FAC & SERV-CUSTODIAL           | \$3       | \$0        | \$0      | \$0      | \$100      | \$103     |
| 505 | PLANT FAC & SERV-WASTE MGMT OP       | \$63      | \$0        | \$0      | \$90     | \$130      | \$282     |
| 506 | PLANT FAC & SERV-PLANT MGR OFC       | \$616     | \$0        | \$0      | \$94     | \$330      | \$1,040   |
| 509 | PLANT FAC & SERV-OPERATION DIN       | \$0       | \$0        | \$0      | \$18     | \$10       | \$28      |
| 510 | PLANT FAC & SERV-UTILITY SYST        | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 512 | PLANT FAC & SERV-FAC PLNG/ENG        | \$728     | \$77       | \$0      | \$44     | \$229      | \$1,077   |
| 530 | SITE MGRS OFC-ANL WEST               | \$62      | \$0        | \$0      | \$0      | \$101      | \$163     |
| 531 | HUMAN RESOURCES-AW                   | \$163     | \$0        | \$0      | \$42     | \$100      | \$306     |
| 532 | SPECIAL MATLS-ANL WEST               | \$1,015   | \$0        | \$0      | \$196    | \$433      | \$1,645   |
| 533 | ACCOUNTING-ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 534 | PURCHASING-ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 535 | SECURITY - ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 536 | ENVIRONMENT, SAFETY & HEALTH-AW      | \$6       | \$0        | \$0      | \$0      | \$100      | \$106     |
| 537 | INFORMATION SERVICE-ANL WEST         | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 538 | SUPPLY-AW                            | \$138     | \$0        | \$0      | \$20     | \$100      | \$258     |
| 548 | ANL WEST GENERAL EXPENSE             | \$176     | \$0        | \$0      | \$48     | \$0        | \$224     |
| 550 | COMPUTER APPL & SERV - ANL-W         | \$105     | \$1        | \$0      | \$13     | \$101      | \$219     |
| 554 | MACHINE SHOP-ANL WEST                | \$27      | \$0        | \$0      | \$5      | \$100      | \$132     |
| 556 | SITE ENGRG-ANL WEST                  | \$94      | \$0        | \$0      | \$9      | \$100      | \$203     |
| 557 | PLANT SERVICES-AW-SERVICE REQ        | \$135     | \$1        | \$0      | \$14     | \$100      | \$249     |
| 558 | PLANT SERVICES-AW-FUNCTION           | \$3       | \$0        | \$0      | \$0      | \$0        | \$3       |
| 561 | OFC OF QUALITY ASSURANCE - AW        | \$8       | \$0        | \$0      | \$0      | \$101      | \$109     |
| 570 | ENVIRON HEALTH SAFETY QUAL ASSURANCE | \$2       | \$0        | \$0      | \$0      | \$2        | \$5       |
|     | SUBTOTAL                             | \$119,729 | \$47,582   | \$0      | \$22,598 | \$30,352   | \$220,260 |
|     | TOTAL                                | \$208,571 | \$103,322  | \$47,333 | \$52,040 | \$72,138   | \$483,405 |



## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance             | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|----------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center              | 2-5421                                | 8-252-5421        | 252-5421                   |
| Current System Status Recorded Message | 2-5466                                | 8-252-5466        | 252-5466                   |
| User Consultant                        | 2-5405                                | 8-252-5405        | 252-5405                   |
| Documentation                          | 2-5405                                | 8-252-5405        | 252-5405                   |
| Computer Operations                    | 2-5421                                | 8-252-5421        | 252-5421                   |
| VM/SP Operator                         | 2-8442                                | 8-252-8442        | 252-8442                   |
| RADS Maintenance                       | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service              | 1-800-332-1478 (only within Illinois) |                   |                            |

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

|                                                                             |         |      |           |
|-----------------------------------------------------------------------------|---------|------|-----------|
| IBM 3270 Protocol Converter                                                 | 2-3270  | n.a. | 252-3270  |
| 1200 to 19.2K Bits Per Second (Onsite)                                      |         |      | 252-3219  |
| 1200 to 2400 Bits Per Second (Offsite)                                      |         |      |           |
| 9600 to 19.2K Bits Per Second (Offsite)                                     |         |      |           |
| X.25 Terminal Multiplexor                                                   | 2-2525  | n.a. | 252-2525  |
| 300 to 19.2K Bits Per Second (Onsite)                                       |         |      | 252-2519  |
| 1200 to 2400 Bits Per Second (Offsite)                                      |         |      | n.a.      |
| 9600 to 19.2K Bits Per Second (Offsite)                                     |         |      |           |
| IBM 3174 Cluster Controller                                                 | 2-3174  | n.a. |           |
| 1,200 Bits Per Second Full-Duplex<br>(Bell 212 and Hayes Compatible Modems) | 2-2212  | n.a. | 252-2212  |
| 1,200 Bits Per Second Full-Duplex<br>(Vadic 3400 Compatible Modems)         | 2-7612  | n.a. | 252-7612  |
| 300 Bits Per Second                                                         | 2-7603* | n.a. | 252-7603* |

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

|                                                                          |        |      |          |
|--------------------------------------------------------------------------|--------|------|----------|
| 2,000 or 2,400 Bits Per Second<br>(Bell 201A and 201C Compatible Modems) | 2-7989 | n.a. | 252-7989 |
| 4,800 Bits Per Second<br>(Bell 208B Compatible Modems)                   | 2-7573 | n.a. | 252-7573 |

### Central DEC VAX Cluster

|                                         |        |      |          |
|-----------------------------------------|--------|------|----------|
| 1200 to 19.2K Bits Per Second (Onsite)  | 2-8700 | n.a. | 252-8700 |
| 1200 to 2400 Bits Per Second (Offsite)  |        |      | 252-8745 |
| 9600 to 19.2K Bits Per Second (Offsite) |        |      |          |

### Argonne TCP/IP Network

|                                         |        |      |          |
|-----------------------------------------|--------|------|----------|
| 1200 to 19.2K Bits Per Second (Onsite)  | 2-5588 | n.a. | 252-5588 |
| 1200 to 2400 Bits Per Second (Offsite)  |        |      | 252-4726 |
| 9600 to 19.2K Bits Per Second (Offsite) |        |      |          |

### Argonne ESnet Dial-Up

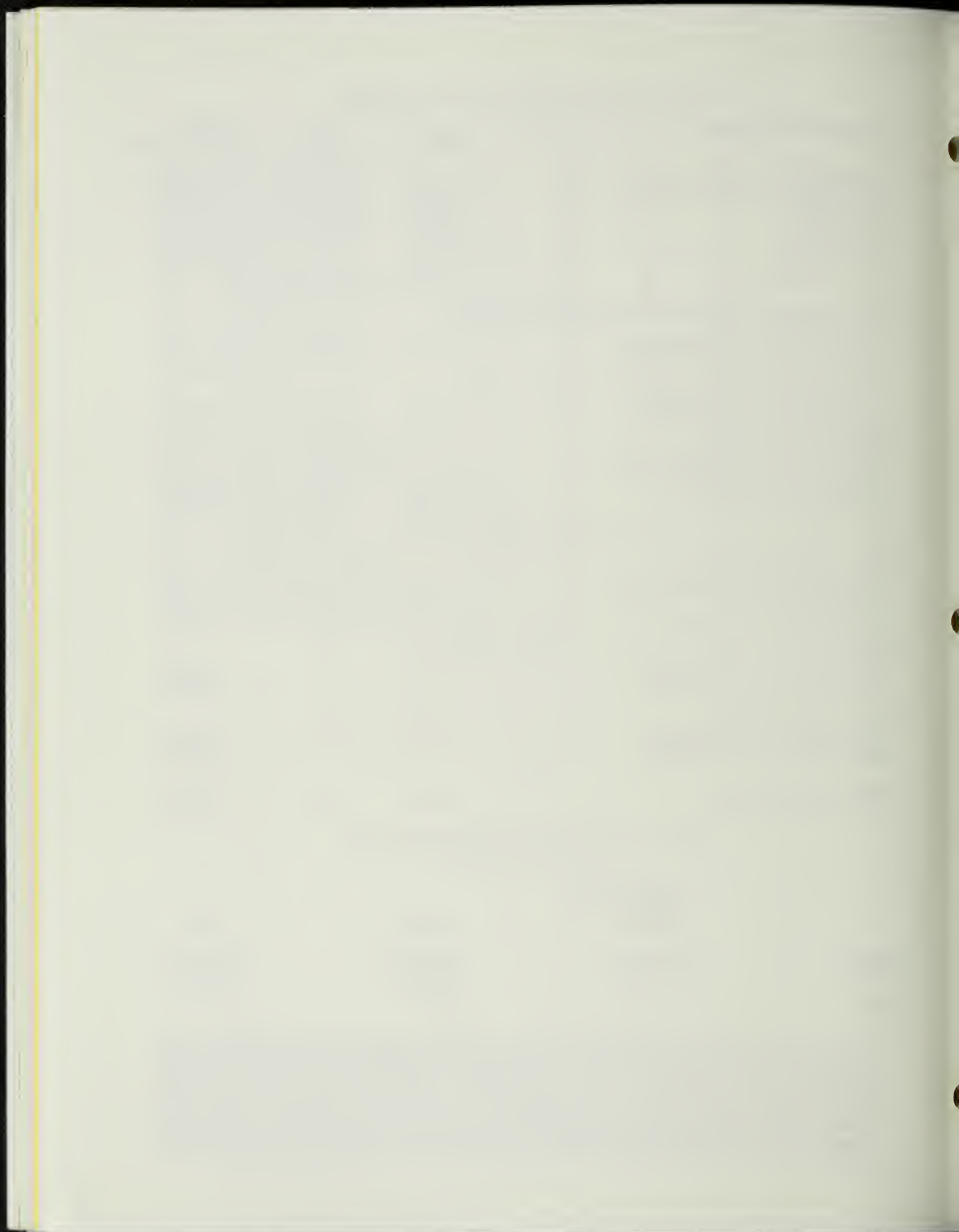
|                              |        |      |          |
|------------------------------|--------|------|----------|
| 300 to 19.2K Bits Per Second | 2-7920 | n.a. | 252-7920 |
|------------------------------|--------|------|----------|

## COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

|                       | MVS JES3<br>Batch, UNICOS<br>Wylbur,<br>and TSO | VM/XA                        | VMS                          |
|-----------------------|-------------------------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00                    | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                                     | 00:00-24:00                  | 00:00-24:00                  |

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



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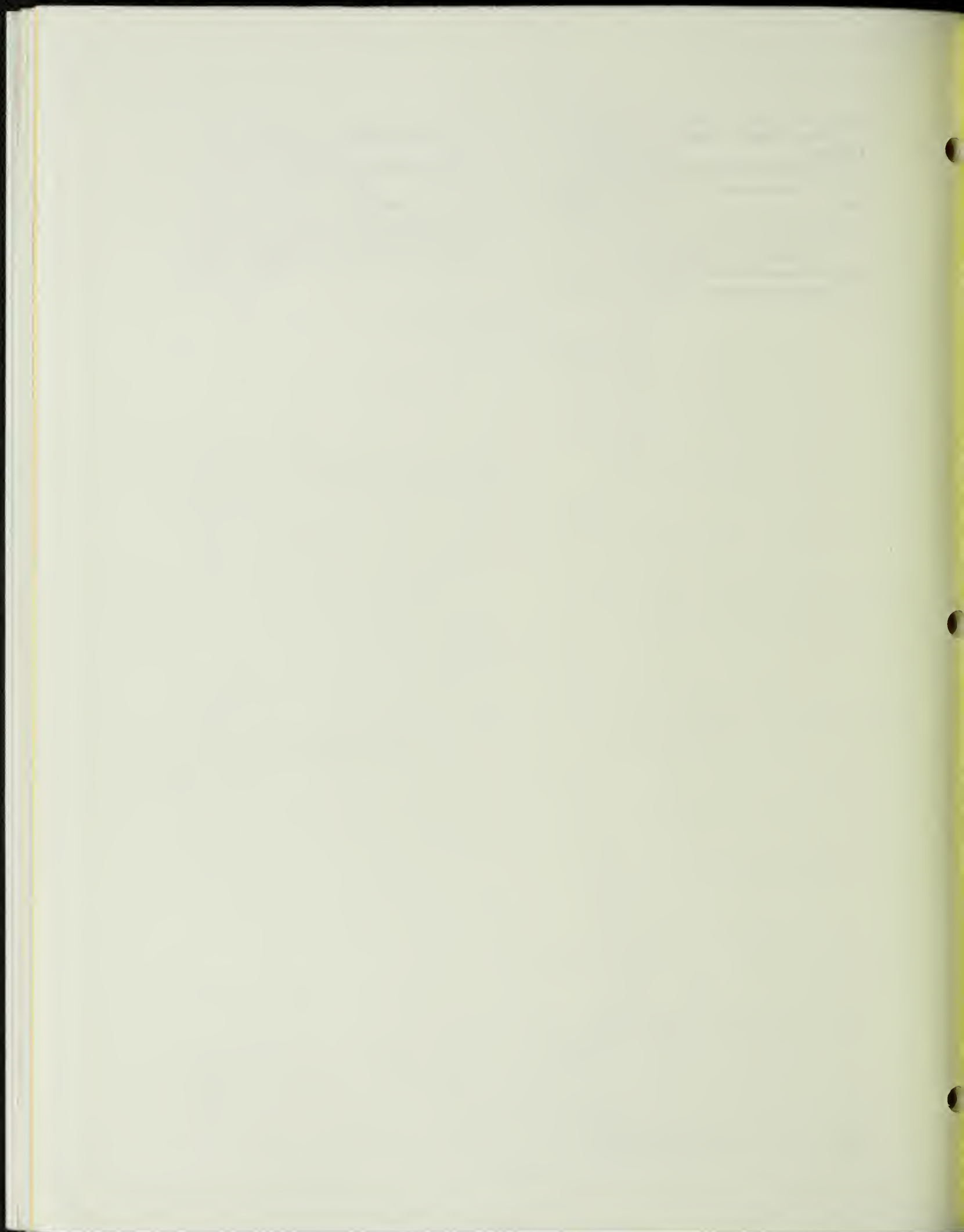
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Argonne National Laboratory  
Computing and Telecommunications Division  
May and June 1992

### COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering nine classes, four labs, and one workshop. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### USING YOUR IBM PERSONAL COMPUTER FOR TELECOMMUNICATIONS

Goals: To understand and apply basic data communication practices to Laboratory-specific equipment (such as Asynchronous Communication Interfaces [ACIs], Asynchronous Data Interfaces [ADIs], and voice/data lines) by using commercial and public domain communication software for the personal computer.

Length of Class: One 2-hour session

Date and Time: May 20, 1992 (Wednesday), 9:30 a.m. to 11:30 a.m.

Location: Building 221, Room A-216

Instructor: James Regula

There is a \$25 charge for this class.

### DEBUGGING FORTRAN (LECTURE)

Goals: To learn the capabilities of modern debugging tools available for the Cray UNICOS, Sun Unix, VAX/VMS, and IBM CMS operating systems.

Length of Lecture: One 1-hour session

Date and Time: May 19, 1992 (Tuesday), 9:30 a.m. to 10:30 a.m.

Location: Building 221, Room A-261

Instructors: Pete Bertoncini  
Steve Karlovsky  
Dave Lifka  
Larry Rudsinski

### **DEBUGGING FORTRAN IN UNIX WITH DBX (LAB)**

Goals: To learn how to use the dbx debugger in Unix.

Length of Lab: One 3-hour lab

Date and Time: May 20, 1992 (Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructors: Pete Bertoncini  
Steve Karlovsky  
Larry Rudsinski

### **DEBUGGING FORTRAN ON THE SUN WITH XDBX (LAB)**

Goals: To learn how to use the X Window Xdbx debugger on the Sun.

Length of Lab: One 3-hour lab

Date and Time: May 21, 1992 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructors: Pete Bertoncini  
Steve Karlovsky  
Larry Rudsinski

### **DEBUGGING FORTRAN ON THE VAX (LAB)**

Goals: To learn how to use the VMS symbolic debugger on the VAX.

Length of Lab: One 3-hour lab

Date and Time: May 22, 1992 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructors: Pete Bertoncini  
Dave Lifka

### **DEBUGGING FORTRAN IN CMS (LAB)**

Goals: To learn how to use the IBM VS Fortran interactive debugger in CMS.

Length of Lab: One 3-hour lab

Date and Time: May 26, 1992 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructor: Pete Bertoncini

To register for a class, call extension 2-5405.

## **FORTRAN 90 WORKSHOP**

Goals: To learn about the new Fortran 90 language standard.

Length of Workshop: Two days

Dates and Time: June 1 and 2, 1992 (Monday and Tuesday), 9:00 a.m. to 4:30 p.m.

Location: Building 223, Room B-002

Instructor: Walt Brainerd, Unicomp, Inc.

## **INTRODUCTION TO COMPUTING FACILITIES AND SERVICES**

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: June 11, 1992 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336, REVISION 2)  
*Recommended Documentation for Computer Users at ANL* (ANL/TM 379, REVISION 3)  
*Guide to Telecommunications at ANL* (ANL/TM 422, REVISION 1)

Instructor: Fred Moszur

## **INTRODUCTION TO VAX/VMS**

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: June 12, 1992 (Friday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *VMS User's Manual* (AA-LA98B-TE)

Instructors: Mike Gomberg  
Dave Lifka



## INTRODUCTION TO UNIX

**Goals:** To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.

**Length of Class:** Three 3-hour lectures and three 1-hour labs

**Dates and Time:** June 16, 17, and 18, 1992 (Tuesday, Wednesday, and Thursday)  
9:00 a.m. to noon (Lecture)  
One-hour Lab each afternoon

**Location:** Building 221, Room A-142

**Suggested Reading:** *A Practical Guide to the Unix System* (0-8053-0243-3)

**Instructors:** Pete Bertoncini  
Steve Karlovsky

## PROGRAMMING IN VAX/VMS

**Goals:** To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.

**Length of Class:** One 3-hour session

**Date and Time:** June 19, 1992 (Friday), 9:00 a.m. to noon

**Location:** Building 221, Room A-142

**Instructors:** Mike Gomberg  
Dave Lifka

## INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

**Goals:** To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

**Length of Class:** One 3-hour lecture with lab

**Date and Time:** June 22, 1992 (Monday), 9:00 a.m. to noon

**Location:** Building 221, Room A-142

**Suggested Reading:** *SLAC Wylbur Tutorial*  
*OBS Wylbur Reference Manual*

**Instructor:** Mike Thommes

Argonne National Laboratory  
Computing and Telecommunications Division  
May and June 1992

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Steve Karlovsky  
Larry Rudsinski

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Goals: To learn how to use the X Window Xdbx debugger on the Sun.

Length of Lab: One 3-hour lab

Date and Time: May 21, 1992 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructors: Pete Bertoncini  
Steve Karlovsky  
Larry Rudsinski

#### **DEBUGGING FORTRAN ON THE VAX (LAB)**

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Location: Building 221, Room A-142

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Location: Building 221, Room A-142

Instructor: Pete Bertoncini

To register for a class, call extension 2-5405.



turnaround time: usually 24 hours  
 job pickup: Building 222, Room A114  
 other: Aldus PageMaker .apd files  
 available for output devices

work contact: Michele or Linda at 7062  
 trouble contacts: Mary Jo Thompson, Supervisor, Design Group, 3740,  
 or Lee Wagar, Computer Support, 5603

## Output Services

|                           | 11 x 17 paper                                         | high resolution                                                 | color paper, viewgraph                                                   | 35 mm                                      |
|---------------------------|-------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------|
| type                      | printer, laser                                        | printer, photographic laser                                     | printer, thermal wax                                                     | film recorder                              |
| resolution                | 300 dpi                                               | 1270 dpi paper, 2540 dpi film                                   | 300 dpi                                                                  | 2k or 4k, slide or negative                |
| color                     | black and white                                       |                                                                 | color                                                                    |                                            |
| language                  | PostScript                                            |                                                                 |                                                                          | PostScript, PICT                           |
| device name               | QMS 2200 Model E                                      | Linotype L300P Imagesetter                                      | QMS ColorScript 100 Model 30                                             | Agfa Matrix SlideWriter                    |
| max size                  | 11 x 17                                               |                                                                 |                                                                          | 35 mm                                      |
| NJE address (IBM)         | ANLCV1.ME11X17                                        | ANLCV1.MELINO                                                   | ANLCV1.MECOLRSP<br>ANLCV1.MECOLRST<br>ANLCV1.MECOLRLP<br>ANLCV1.MECOLRLT | ANLCV1.MESLIDE                             |
| AppleTalk address (Mac)   | chooser object: LaserWriter<br>zone: Public AppleTalk |                                                                 |                                                                          |                                            |
| printer:                  | MED 11x17 printer                                     | MED LINotype imagesetter                                        | MED Color SP<br>MED Color ST<br>MED Color LP<br>MED Color LT             | meslide                                    |
| VAX cluster address (VMS) | ME11X17                                               | MELINO                                                          | MECOLRSP<br>MECOLRST<br>MECOLRLP<br>MECOLRLT                             | MESLIDE                                    |
| Unix                      | me11x17                                               | melino                                                          | mecolrsp<br>mecolrst<br>mecolrlp<br>mecolrlt                             | meslide                                    |
| price, per item           | \$0.30, min charge \$5.30                             | paper 1-50 pgs: \$8.10<br>paper >50 pgs: \$4.30<br>film: \$9.20 | SP: \$6.50<br>ST: \$7.00<br>LP: \$7.60<br>LT: \$8.10                     | 1-4: \$4.90<br>5-20: \$4.30<br>>20: \$3.80 |

SP=standard paper=8.5 x 11 • ST=standard transparency=8.5 x 11 • LP=large paper=11 x 17 • LT=large transparency=11 x 17

## Input Services

|                 | b&w paper                 | color paper              | color 35 mm                    | OCR                                |
|-----------------|---------------------------|--------------------------|--------------------------------|------------------------------------|
| resolution      | 300 dpi                   | 600 dpi                  | 720 dpi                        | -                                  |
| depth           | 8 bits                    | 24 bits                  | 24 bits                        | -                                  |
| color           | black and white           | color                    |                                | -                                  |
| language        | TIFF, MacPaint, PICT, EPS | TIFF                     | TIFF, PICT, EPS, MacPaint, TGA | ASCII, Word, WordPerfect, MacWrite |
| device name     | HP ScanJet Plus           | MicroTek ScanMaker 600zs | BarneyScan 3515                | OmniPage software, HP Scanner      |
| max size        | 8.5 x 11.7                | 8.5 x 13                 | 35 mm                          | 8.5 x 11                           |
| network address | none                      |                          |                                |                                    |
| price, per page | \$2.70                    |                          |                                |                                    |



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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

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"First Among Equals"  
Only you can do it!



# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

|                                             |                           | Room  | Phone  | Electronic Mail Address |
|---------------------------------------------|---------------------------|-------|--------|-------------------------|
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| Data Communications                         | Linda Winkler             | B251  | 2-7236 | B32357 AT ANLVM         |
| Service Engineering                         | Paul Phillips             | D118  | 2-4343 | B36679 AT ANLVM         |
| Network and Computer Operations             | Gary Schlesselman         | A113  | 2-5437 | B09819 AT ANLVM         |
| Day and Weekend Operation                   | Bob Bilshausen            | A134  | 2-5421 |                         |
| Document Distribution Counter               |                           | A134  |        |                         |
| Evening and Overnight Operation             | Mike Monczynski           | A134  | 2-5421 |                         |
| Tape Librarian                              | Sandra Vasko              | A134  | 2-7681 | B18669 AT ANLVM         |
| Trouble Reporting                           |                           | A134  | 2-5421 | noc@anl.gov             |
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| Telephone Services                          | Allen Winter              | B247  | 2-2764 | B07059 AT ANLVM         |
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| Computer Use Authorizations                 | Fran Camaghi              | A147  | 2-5425 | B27596 AT ANLVM         |
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| Documentation Advice                        |                           | A139  | 2-5405 | CONSULT AT ANLVM        |
| Education and Assistance                    | Pete Bertonecini (Acting) | E101  | 2-4827 | B15013 AT ANLVM         |
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| Financial Systems                           | Nick Moore                | C115D | 2-8075 | B31048 AT ANLVM         |
| Human Resource Systems                      | Bob Hischer               | B147  | 2-7272 | B22639 AT ANLVM         |
| Information and Production Services         | Miriam Bretscher          | B139  | 2-7252 | B26187 AT ANLVM         |
| Materials and Plant Systems                 | Rich Slade                | B159  | 2-7329 | B32848 AT ANLVM         |
| Planning, Finance, and Administration       | Mike Boxberger            | A245  | 2-5638 | B34540 AT ANLVM         |
| Scientific Applications and Research        | Charles Mueller           | A231  | 2-7153 | B11284 AT ANLVM         |
| Software Management Program                 | Dennis Tussing            | B228  | 2-4656 | B35139 AT ANLVM         |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 4/490 with Sun OS 4.1.1, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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## COMPUTING COMMENTS

### LABORATORY LAUNCHES SOFTWARE MANAGEMENT PROGRAM

CTD has begun developing a Software Management Program (SMP) for the Laboratory to assure that software and software initiatives are appropriately controlled and monitored through development, configuration, and inventory management. Concurrently, the SMP should assure Laboratory compliance with DOE Order 1330.1C. CTD will administer the SMP similarly to the Computer Protection Program. The SMP Manager is Dennis D. Tussing, formerly the Senior Systems Auditor for ANL. Dennis will be working with the Computing Policy Committee (CPC) QA Subcommittee for divisional input.

Overview presentations have been made to several Laboratory groups. The CPC QA Subcommittee and other Laboratory management personnel are reviewing drafts of a *Statement of Compliance with DOE Order 1330.1C* and a *Policy Statement*. A July 1992 milestone date has been set for CPC approval of the statements. A *Software Management Guide* is scheduled for completion in March 1993. During the interim, the SMP Manager will develop a grading matrix and generic management plans for the various levels of software. The SMP Manager will also identify various management methods used at ANL and develop QA policies and procedures related to the Order.

Additional information will appear in future *Newsletter* articles.

### MEDIA SERVICES NETWORKED ELECTRONIC PRINTER READY FOR TRIALS

The Information and Publishing Division's Media Services Department (MED) has installed a Kodak Lionheart EktaPrint 1392 printer in Building 222. This device combines the functions of a networked PostScript laser printer and a high-speed duplicator in one machine. The printer will be connected to the site-wide Ethernet. MED intends that eventually everyone with access to the Ethernet should be able to print to the Lionheart. Access from the various computer systems present onsite will be announced as they are configured.

MED is looking for participants to try out this new process. For more information, contact Lee Wagat at extension 2-5603.

### COMPUTING CLASSES SCHEDULED FOR JUNE AND JULY 1992

During June and July 1992, CTD will offer seven classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the CTD VAX cluster before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

*Introduction to Unix* (three 3-hour lectures with three 1-hour labs) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control;



using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will entail the use of Unix from ASCII terminals to reinforce the lecture content.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour lecture with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

*Introduction to UNICOS* (one 3-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/18 high-performance computer. The class will review material covered in the *Introduction to Unix* class and will cover shell programming, Network Queuing System (NQS) job submission, and management of Cray files from the IBM MVS front-end station or from scientific workstations via Transmission Control Protocol/Internet Protocol (TCP/IP).

*Using CMS with IBM 3270-Compatible Display Terminals* (two 3-hour lectures with labs) is for CMS users of IBM 3270-compatible display terminals, IBM or Apple Macintosh personal computers with NCSA tn3270, or ASCII terminals with the Hydra Protocol Converter. This class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellgraf. The labs use ASCII terminals with the Hydra Protocol Converter, but the principles learned will apply to all the terminals and access methods mentioned above. Everyone registering for the CMS class must have a CMS account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

*Using SAS* (two 3-hour sessions) includes examples of Statistical Analysis System (SAS) programs in CMS, although you can use the same SAS code in the MVS batch, VAX/VMS, and IBM PC systems. SAS is a powerful, easy-to-use computer system for data analysis. In addition to statistical analysis, SAS provides tools for information storage and retrieval, data modification and programming, report writing, and file handling. Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC is necessary.

## CMS NEWS

### KERMIT VERSION 4.2.3 BECOMES PRODUCTION VERSION IN CMS

On Monday, June 15, 1992, CMS Kermit Version 4.2.3 (the latest version available from Columbia University) will become the production version at Argonne. This new version of Kermit is a minor enhancement to Version 4.2.2, which is the current production version at Argonne. However, two of the enhancements have significant benefits for Argonne users.

One enhancement involves the use of SYSTEM and USER initialization files for CMS Kermit. The SYSTEM initialization file has allowed CMS Kermit to be customized to the ANLVM environment. The USER initialization file will allow users to customize Kermit for their own needs. To create the USER initialization file, use Xedit to create a file called Bnnnnn KERMINI A1 (where "Bnnnnn" is your userid). The file KERMIT DOCUMENT (on the KERMIT 2 minidisk) describes what you may enter in the USER initialization file.

The second enhancement allows the new **UPLOAD** and **DOWNLOAD** execs to work at Argonne, with the following limitations:

1. An IBM PC or PC-compatible must be used.
2. MS-KERMIT must be at level 3.00 or newer.
3. The current ANL-provided initialization files, containing the

**DEFINE TERMINALS SERVER,CONNECT**



command line, must be used. If you do not use these initialization files, the **UPLOAD** and **DOWNLOAD** execs will display random characters and subsequently hang; entering **STOP** twice will return you to CMS.

The **UPLOAD** and **DOWNLOAD** execs allow file transfers between the PC and the mainframe to be performed with a single command:

```
KERMIT DOWNLOAD fname ftype fmode
```

where "fname" is the file name, "ftype" is the file type, and "fmode" is the file mode. Before June 15, you must type "KERMTST" rather than "KERMIT" in the command line above.

For additional information about **UPLOAD** and **DOWNLOAD** (after the **KERMIT 2** minidisk has been linked and accessed), enter:

```
HELP UPLOAD
```

or

```
HELP DOWNLOAD
```

To test Kermit 4.2.3 before June 15, 1992, enter:

```
KERMTST
```

This command links the **KERMIT 2** minidisk and invokes Kermit. If the **UPLOAD** or **DOWNLOAD** parameters are included, then the corresponding exec will be invoked. The new help files and documentation file are also on this minidisk.

After June 15, all files on the **KERMIT 2** minidisk will be moved to the **KERMIT 1** minidisk, and the command **KERMIT** will invoke the new version.

Please report any difficulties with Kermit 4.2.3 to the User Services consultants at extension 2-5405.

## CRAY NEWS

### HOW TO CREATE IEEE-COMPATIBLE BINARY FILES

With the advent of heterogeneous networks (those that connect computers from different vendors), users want to know about the portability of Fortran-generated and C-generated data files across different computer platforms. Experiments performed by CTD indicate that unformatted data is indeed portable across Unix workstations, if that data adheres to the Institute for Electrical and Electronics Engineers (IEEE) internal data representation. Moreover, while the Cray X-MP does not normally adhere to the IEEE standard, a convenient way exists to generate IEEE-compatible unformatted Cray data files that are portable.

CTD conducted tests on three different workstations (SUN 4, IBM RS 6000, and Silicon Graphics SGI). The same file was generated on the three different workstations with unformatted **WRITE** statements from a Fortran test program. The three files were compared and found to be identical. These test cases indicate that unformatted data files are portable across different architectures running a version of the Unix operating system and adhering to the IEEE internal data representation.

CTD executed the same tests on the Cray, where the data generated was written to a file with Fortran unformatted **WRITE** statements. Prior to executing the tests on the Cray, CTD used the Cray **assign** statement to set two environment variables. The first parameter on the **assign** statement, "-N ieee," directed the Fortran program to write the data in the IEEE internal representation. The second parameter, "-F f77," directed the program to write the file in a standard Unix Fortran format. Both parameters are necessary.

The two Unix commands used to execute the program, "a.out," were:

```
assign -N ieee -F f77 cray.data
a.out
```

The file generated, "cray.data," was then read by an unformatted **READ** statement in the Fortran test program on the SUN 4. CTD compared the results

on the Cray to the same information generated on the SUN4 and found them to be identical.

The "ieee" option of the **assign** statement converts Cray 64-bit single-precision floating-point and integer representation to IEEE 32-bit single-precision and integer representation, respectively. Users who need to convert Cray 64-bit single-precision floating-point to IEEE double-precision must code the conversion within their Fortran programs. For assistance, call Larry Rudsinski at extension 2-7219.

## GRAPHICS NEWS

### CTD ESTABLISHES RATES FOR NEW OUTPUT SERVICES

Recently, CTD announced the availability of new PostScript output devices and made them available for testing. These devices are available to distributed Unix, Apple Macintosh, and IBM Personal Computer users via the Laboratory-wide Ethernet.

In the April 1992 *Newsletter*, two articles described the conventions for sending output to these devices and providing proper identification--"Matrix Slide Camera Now Accepts PostScript from Apple Macintosh, IBM Personal Computer, and Unix Workstations" and "CalComp Plotter Now Accepts PostScript from Apple Macintosh, IBM Personal Computer, and Unix Workstations."

Rates for the new services are in Table 1. Improperly identified output requiring manual distribution and accounting incurs an additional charge. Those who do not need a central computing account but who wish to use these new output services should call Account Services at extension 2-5425 and enroll as output services users.

For assistance in using the new output devices, contact the User Services consultants at extension 2-5405.

Table 1: Rates for Output Services

| Device Address  | Description                       | Rate              |
|-----------------|-----------------------------------|-------------------|
| anlcv1.anlcc    | large format color plot           | \$15.00 per plot  |
| anlcv1.anlccbw  | large format black-and-white plot | \$10.00 per plot* |
| anlcv1.anlslide | 35mm color slide                  | \$ 5.00 per slide |
| anlcv1.anlclrp1 | color Seiko 8.5x11 paper          | \$ 1.75 per page  |
| anlcv1.anlclrtl | color Seiko 8.5x11 transparency   | \$ 3.00 per page  |
|                 | surcharge for unidentified output | \$ 3.00 per job   |

\*proposed rate pending approval

### PRODUCTION MATRIX CAMERA REPLACED

CTD has been testing an upgraded Matrix camera at network address anlcv1.anlslide that accepts PostScript files as input (see "Matrix Slide Camera Now Accepts PostScript from Apple Macintosh, IBM Personal Computer, and Unix Workstations" in the April 1992 *Newsletter* for details). Effective

immediately, the test Matrix camera is the production service.

CTD's previous production Matrix camera has experienced a severe hardware failure that renders it unusable at high resolution. Users of the CMS and VMS **HARDCOPY** command can now select the PS option and can specify the new address to obtain 35mm slides.



Users experiencing any difficulties should contact the User Services consultants at extension 2-5405.

## MANAGEMENT INFORMATION SYSTEMS

### DISASTER RECOVERY PLAN TESTED

Management Information Systems (MIS) recently completed the annual test of disaster recovery procedures for two administrative applications at the University of Chicago Computational Center: the Integrated Financial System and the Payroll System. MIS systems analysts transported back-up copies of application files to the Center, installed the application software and data on the University of Chicago computers, and completed a general ledger transaction processing and a payroll processing. At the end of the test each year, MIS conducts a review of the exercise and updates procedures in the Laboratory's *Disaster Recovery Plan for Administrative Systems* to incorporate improvements and needed changes.

The *Disaster Recovery Plan for Administrative Systems* represents a workable plan for recovering critical administrative applications during service disruptions that last more than three days on the central IBM, central VAX, or Hewlett-Packard computer systems. The University of Chicago has agreed to provide standby computer center service to the Laboratory in the event of a disruption to the Laboratory's IBM computing facility. For extended service disruptions to the central computing facility, the *Plan* provides for installing replacement computer systems in the Laboratory's designated replacement site.

Volume I of the *Disaster Recovery Plan for Administrative Systems* (ANL/TM 456, Revision 1), which describes the contingency plans and the organization of the recovery teams, is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). Volumes II and III of the *Plan* contain sensitive information within the detailed procedures and are not available for distribution.

### HUMAN RESOURCE SYSTEM (HRS) REPLACED

Argonne is replacing the current Human Resource System (HRS) implemented in 1978 that uses CMS and the Inquire database management system. Early in May 1992, Human Resources (HR) trained a pilot user group. HR has incorporated the pilot user group's suggestions into the new system. Beginning at the end of May 1992, HR will train the rest of the Laboratory's staff who need and are authorized to use HRS.

The new system offers many advantages over the old system. Now, users will access the same employee database that HR staff do so that data seen online or in reports will be as current as possible. More employee data elements are available than before as well as terminated employee records, records for Division of Educational Programs students, and other groups of people. HRS incorporates the Integrated Financial System I/O Reporting System and has implemented an overall online architecture for both financial and human resource systems so that both systems have the same "look and feel."

The old HRS system will be operational for approximately three months to allow a transition period. To enroll in the HRS training sessions, contact HR at extension 2-2987. Because sensitive data is available through the system, you must turn in an enrollment form signed by your division director to attend the training sessions.

### STATUS OF CLIENT/SERVER RELATIONAL DATABASE PROJECT

The Administrative Data Processing Oversight (ADPO) Committee funded a project for Management Information Systems (MIS) to investigate relational database and client/server technology for potential use at the Laboratory. During the project, MIS identified key products and investigated current and expected capabilities of this new technology. MIS has developed possible scenarios to identify a computing environment that would become the basic building block in providing seamless access to information across different computing platforms.

The term client/server computing is most often defined as a process involving several computer platforms, each performing a portion of the computer processing. The client computer handles the user



interface and generates requests for information to the server machine. The server, in turn, provides the data management portion of the processing by performing the requested function and by sending the information or a response back to the client machine.

Usually data management on the server is accomplished through a relational database management system (such as Oracle or Sybase) or one of the many other multi-user database systems. These databases use a common data access language, Structured Query Language (SQL), and often are capable of running on different hardware and operating systems. Interest in client/server computing is high among enterprises that are demanding "open" systems (that is, systems not limited to a single hardware or software vendor) for good price and performance, portability of software, and scalability of hardware. To meet the perceived customer demand, the relational database vendors are developing their products to take advantage of the client/server environment, and many third party software vendors are developing a wealth of graphical user interface tools for client processing.

MIS is developing a pilot application as part of this project. The pilot is a software tracking application that will possibly be available for future use at the Laboratory. The relational database being used for the pilot is a Microsoft SQL-Server that runs on a 386-based personal computer (PC) server machine on a LAN Manager local area network. The SQL-Server is really a version of the Sybase database that Microsoft markets for PC local area networks. The SQL-Server was tested with three client tools that came with the database server.

Preliminary findings have been impressive. MIS used ER/win SQL from Logic Works (a database design tool) to define the database. Object View is an application development and application development toolkit. Forest and Trees is a product capable of accessing information from a relational database and other PC software products and of reporting or graphing the information or transferring the information to other software (such as spreadsheets or word processors).

The tools are easy to use and can offer personal productivity improvements over traditional non-graphical interface products. Although there is very limited activity on the network, the response time appears to be good. MIS's use of this server and

these client tools should not be construed as an endorsement of any of these specific products. We chose the products based on their cost and particular fit for available networking and hardware components. They are, however, indicative of the general characteristics needed for a client/server application.

The real benefit of undertaking this project is not to develop this specific pilot application but to provide experience in this computing environment. Our experience will validate the portability, scalability, connectivity, and ease of application development and will help us assess the tools and products for client/server computing.

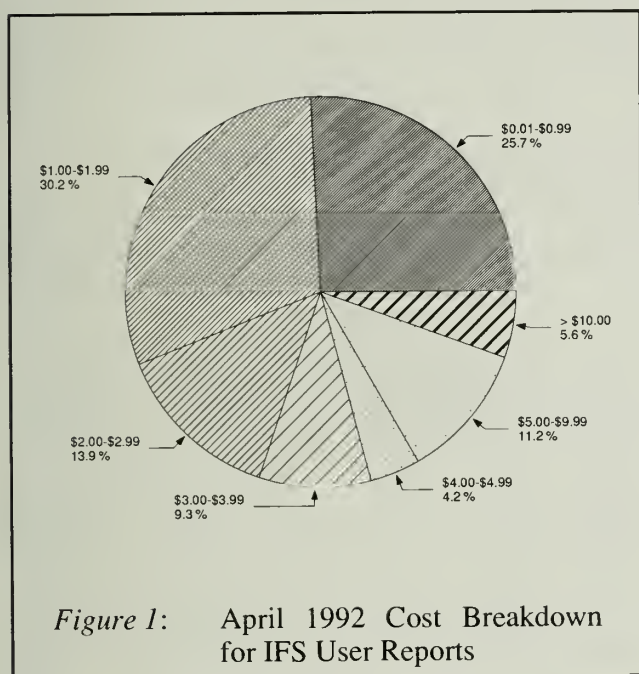
Future articles will report our findings from the project and our progress in developing this new technical strategy. For additional information on this project, contact Rich Slade at extension 2-7329.

#### **INTEGRATED FINANCIAL SYSTEM UPDATE**

On the fourth or fifth working day of each month, the Integrated Financial System (IFS) Project Team submits reports for the Laboratory's financial users. In April 1992, we submitted 1,924 user reports and printed about 5.7 million lines of output on CTD printers, with most of the printing being done on the IBM 3800 laser printer in CTD. We control the rate at which the reports are submitted and executed to avoid monopolizing the IBM 3084 computer. Printing the reports takes about 24 hours and causes a large backlog on the IBM 3800 laser printer. Computer Operations arranges for other jobs submitted during this two-day period to have priority on the IBM 3800 laser printer and for IFS report printing to be released when the printer is idle during the day. This action minimizes the delays users will experience in getting output from the IBM 3800 laser printer during this period. For the remainder of 1992, we plan to submit reports on June 4, July 7, August 6, September 4, November 5, and December 4, 1992. If circumstances permit, we will submit the reports one day early to provide the financial users with their reports as soon as possible. The year-end close schedule for October 1992 is yet to be determined.

In April 1992, the total cost for the 1,924 IFS reports was \$6,492. The average job cost was \$3.37, with 94 percent of the reports costing under \$10 each. Figure 1 shows the cost breakdown.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the third working Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.



## MVS NEWS

### VS FORTRAN VERSION 2.5.0 OF THE IBM VS FORTRAN COMPILER AND LIBRARY AVAILABLE FOR TESTING IN MVS BATCH

Version 2.5.0 of the IBM VS Fortran program product is now available for testing in MVS batch. The version of VS Fortran in current production in MVS is Version 2.4.0. Version 2 Release 5 of VS Fortran is IBM's latest version of this compiler and library. There are many new enhancements in Version 2.5.0 that are useful for debugging and optimizing programs (even programs written for non-IBM systems) and for converting existing non-IBM Fortran programs to use in MVS batch.

VS Fortran Version 2.5.0 has these enhancements:

- Support for parallel programs running under CMS and MVS (two processors are currently available to MVS users). These enhancements allow for:
  - Generating automatically parallel code for DO loops by using a compile-time option.
  - Coding explicitly parallel loops, sections, and calls with parallel language extensions.
  - Using lock and event services to control synchronization in parallel programs.
  - Directing the compiler to generate parallel or serial code by using enhanced directives.
  - Determining the number of virtual processors available and specification of the number of virtual processors to use during run time.
  - Using I/O within parallel programs.
  - Calling subroutines within parallel loops and sections.
  - Obtaining information for tuning your parallel program by using a compiler report listing.
- Capabilities to compile larger programs.
- MAIN# as the default name for a main program, which allows MAIN to be used as a user name for a common block or other global entity.
- Array declarator expressions for object-time dimensions of type integer\*2.

To test VS Fortran 2.5.0, you must override the STEPLIB, LIBRARY, and/or GOLIB symbolic parameters; different combinations of these parameters appear in each FORTVxxx cataloged procedure. See Table 2 to override parameters for each procedure. An example would be:

```
//step EXEC FORTVCEP,
// STEPLIB='SYS2.VSF2COMP',
// LIBRARY='SYS2.VSF2FORT'
```



If you create permanent load modules from Version 2 object code, you must include dataset SYS2.VSF2LOAD in your execution step STEPLIB specification. An example would be:

```
//step EXEC PGM=myspgm
//STEPLIB DD DISP=SHR,DSN=Bnnnnn.myload
// DD DISP=SHR,DSN=SYS2.VSF2LOAD
```

VS Fortran Version 2.5.0 is documented in *IBM VS Fortran Version 2 Language and Library Reference, Release 5* (SC26-4221-6) and *IBM VS Fortran Version 2 Programming Guide for CMS and MVS, Release 5* (SC26-4222-5), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). The manuals with document numbers ending in "-4" are for Version 2.4.0.

If there are no difficulties, CTD will make Version 2.5.0 the production version on Monday, July 6, 1992. At that time, we will delete the SYS0 libraries that contain an older maintenance release of 2.4.0, rename the SYS1 libraries to SYS0, and rename the SYS2 libraries to SYS1. After that time, you should no longer refer to the SYS2 libraries in your JCL.

Table 2: Required Overrides To Test VS Fortran 2.5.0

|                         | C | CD | CEG | CEP | CLG | CP | EG | EP | LG |
|-------------------------|---|----|-----|-----|-----|----|----|----|----|
| STEPLIB='SYS2.VSF2COMP' | X | X  | X   | X   | X   | X  |    |    |    |
| LIBRARY='SYS2.VSF2FORT' |   |    | X   | X   | X   |    | X  | X  | X  |
| GOLIB='SYS2.VSF2LOAD'   |   |    | X   |     | X   |    | X  |    | X  |

#### MVS CPU TIME LIMIT RAISED

On Monday, June 1, 1992, CTD raised the CPU time limit for MVS from 1 hour to 12 hours. Raising the CPU time limit permits users to avoid breaking up lengthy executions into several smaller executions and therefore should simplify the use of the MVS batch processor.

Previously, users needed approval in advance from CTD Operations to be able to submit jobs with time limits longer than one hour. This pre-approval process inconvenienced users. Approvals were often difficult to obtain, especially if the need for extended time was discovered during non-prime periods. Now users can submit jobs with any CPU time limit desired, and normally those jobs will initiate when the requested class becomes available.

Users should check the recorded message for scheduled shutdowns of the IBM hosts, especially if their jobs are submitted for overnight execution (class X) and the elapsed time of those jobs is greater than 9 to 10 hours. CTD frequently performs sys-

tem maintenance on the MVS software from 4:00 a.m. until 7:00 a.m., and it is possible that CTD may defer the initiation of potentially long-running batch jobs or may cancel active jobs if they conflict with needed maintenance efforts.

Users should also note that CTD will only refund the last 15 CPU minutes of a user's batch charges if a system shutdown or failure occurs. Users with long-running jobs should therefore consider implementing a checkpoint mechanism in those jobs.

Users with questions or an interest in executing extended length applications should call the User Services consultants at extension 2-5405.



### MVS/XA CONVERSION CONTINUES

CTD is continuing the conversion to the Multiple Virtual Storage/Extended Architecture (MVS/XA) operating system upgrade for the IBM 3084 computer from MVS/370. The MVS conversion follows the successful conversion to the XA version of the VM (Virtual Memory) operating system in 1991. A switch to the XA version of MVS will allow larger user programs, provide new functions, and better use the IBM 3084 computer.

Currently, VM and MVS are each allocated one-half of the IBM 3084. To run MVS and VM together on the entire machine, it is necessary to configure them with VM/XA in control of the IBM 3084 and MVS/XA running under VM/XA as a guest.

CTD has made several changes to the existing MVS/370 operating system to prepare for the MVS/XA conversion. We have installed RACF 1.9, made changes to the private volume disk management software developed at ANL, and installed a significant number of IBM fixes to the Customer Information Control System (CICS). CTD is also preparing a new release of the tape management system for MVS/370. Work will proceed on the MVS/XA conversion in parallel with this modification.

A limited MVS/XA test system should be available by early July 1992. A production MVS/XA system running under VM/XA should be operational by late 1992 or early 1993. A major consideration in timing the move from MVS/370 to MVS/XA is the requirement to avoid any conflicts with the fiscal year-end close period from August 1992 through November 1992. Following the move to MVS/XA, CTD plans a conversion to the XA version of CICS.

To help in the transition to the MVS/XA system, CTD plans to use the flexibility of the VM/XA operating system to provide test and production MVS systems simultaneously. Ample test time will be available before moving to the production version of MVS/XA. Much of this test time should be available during normal business hours.

### UPDATED OS/VS COBOL 1.2.4 AVAILABLE FOR TESTING IN MVS BATCH

A maintenance update to Version 1.2.4 of the IBM OS/VS Cobol program product is available for testing in MVS batch. This maintenance update has 25 fixes from IBM, and it places the compiler and library at the 9202 maintenance level. The production compiler and library are at the 9005 maintenance level.

To test the updated OS/VS Cobol 1.2.4, you must override the STEPLIB and/or LIBRARY symbolic parameters; different combinations of these parameters appear in each COBxxx cataloged procedure. To override parameters for each procedure, see Table 3. For example, you might enter:

```
//step EXEC COBCEP,
// STEPLIB='SYS2.COBLINK',
// LIBRARY='SYS2.COBLIB'
```

OS/VS Cobol Version 1.2.4 is documented in *IBM VS COBOL for OS/VS* (GC26-3857-04) and *IBM OS/VS COBOL Compiler and Library Programmer's Guide* (SC28-6483-2), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

Please report any difficulties to the User Services Consultants at extension 2-5405. If there are no difficulties, CTD will make the updated Version 1.2.4 the production version on Monday, July 6, 1992. At that time, we will delete the SYS0 libraries (that contain Version 1.2.3), rename the SYS1 libraries to SYS0, and rename the SYS2 libraries to SYS1. After that time, you should no longer refer to the SYS2 libraries in your JCL.

Table 3

*Required Overrides To Test OS/VS Cobol 1.2.4*

|                        | C | CD | CEG | CEP | CLG | CP | EG | EP | LG |
|------------------------|---|----|-----|-----|-----|----|----|----|----|
| STEPLIB='SYS2.COBLINK' | X | X  | X   | X   | X   | X  |    |    |    |
| LIBRARY='SYS2.COBLIB'  |   |    | X   | X   | X   |    | X  | X  | X  |

**PERSONAL COMPUTING****NCSA TELNET 2.4 AVAILABLE FOR APPLE MACINTOSH**

A new version of NCSA Telnet, Telnet 2.4.02 MacTCP, is now available for Apple Macintosh users who have access to the Public Volume. This release fixes several minor problems. For example, Telnet can now find a "config.tel" file in the System Folder, and users can specify color for each session in "config.tel," whether or not a nameserver=line exists.

The new features are:

- Domain name look-up executes through the MacTCP resolver, so that Telnet is now able to run with any number of other TCP products.
- Compatibility with Tektronix 4105 emulation permits display of color TEK images.
- Telnet automatically numbers windows on opening to distinguish multiple connections to the same machine.
- Windows can be automatically staggered sufficiently to show the title bar when a session is opened.
- The Open-connection dialog box allows copying and pasting when users are choosing a session to open.

The bug fixes are:

- Telnet no longer crashes after ftp transfer of more than 64 files.
- The cursor does not get randomly destroyed after some ftp sessions.
- Telnet works correctly on the Mac Portable.
- The numeric keypad is fixed to allow VT100 emulation.
- The menus are now highlighted correctly.
- Memory management has been completely overhauled to prevent Telnet from crashing randomly.

**SCIENTIFIC WORKSTATIONS****ELECTRONICS EXTENDS SUN SERVICES**

The Computer Services Group of the Electronics Department now provides services for the complete line of Sun Computers' desktop workstations. These services include installation, hardware and software maintenance, upgrades, and complete network planning and troubleshooting. The covered models now include the Sparc Station 2, IPX, ELC, IPC, SLC, 1, and 1+.

Electronics also covers many non-Sun products and peripherals to be used with Sun workstations (such as various hard drives, Exabyte 2.3 gigabyte tape drives, network repeaters, and other components). Help is available to clients ordering new Sun



systems. Call for recommended models and configurations. Many components may be available at significant savings from Electronics stock.

These services and many others are available by contacting Chuck Beck at QuickMail address [chuck\\_beck@qmgate.anl.gov](mailto:chuck_beck@qmgate.anl.gov) or at extension 2-6969.

### DEC AND IBM WORKSTATION EXPERIENCES

During March and April 1992, CTD had two demonstration workstations available for users to evaluate. The Digital Equipment Corporation (DEC) provided a DECstation 5000/240 for seven weeks. This workstation is rated at 32.4 SPECmarks and 6.04 MFLOPS. IBM provided an RS6000 Model 560 for three weeks. The Model 560 is rated at 89.3 SPECmarks and 30.5 MFLOPS. More than 20 scientists from throughout the Laboratory obtained accounts on at least one of these machines.

A variety of tests were run on both machines, from small programs measuring the performance of individual library routines to very large production applications that normally execute on mainframes. Several of the users who obtained accounts on the Model 560 and benchmarked their particular applications have found this workstation outperformed all of the other reduced instruction set computer (RISC)-class machines they have benchmarked.

Software and hardware on both workstations were stable, and the effort to convert codes to execute on the two machines was straightforward.

Robert Schmitt (Materials and Components Technology), who moved the COMMIX-1c code (24,000 lines of Fortran) to the Model 550 last fall, benchmarked the Model 560. COMMIX-1C ran successfully on the Model 560. Previously, when Bob attempted to run COMMIX-1C on the Model 550, the system had crashed repeatedly. However, in subsequent identical tests, IBM could not reproduce the crash on other Model 550 workstations.

Pat Garner (Reactor Analysis) used two cases to benchmark COMMIX-1AR/P, a three-dimensional thermal-hydraulic analysis code with 38,000 lines of Fortran, on both the IBM RS6000 Model 560 and the DECstation 5000/240. Case 1 was a small geometry check-out problem, whereas Case 2 was

larger and represented more of a normal production problem. The timing results (in seconds) for the two cases on the two workstations appear in Table 4.

Table 4: COMMIX-1AR/P

|                      | CASE 1       | CASE 2 |
|----------------------|--------------|--------|
|                      | (in seconds) |        |
| DECstation 5000/240  | 226.63       | 693.64 |
| IBM RS6000 Model 560 | 102.13       | 168.22 |

Keith Derstine (Reactor Analysis) benchmarked REBUS3 (Nodal Diffusion Theory) on the IBM RS6000 Model 560. The problem tested was a nine energy group, full core, hexagonal Z case with 17 rings and 22 axial planes (EBR II RUN 157H). After completing two cases (with one and three neutronics steps, respectively), REBUS3 was then combined with eight copies of COMMIX to evaluate the multiple jobstream performance of the workstation. Table 5 indicates the total time (in seconds) for the consecutive execution of one REBUS job and eight COMMIX jobs and the total time for the simultaneous execution of the same nine jobs.

Table 5: REBUS3 with COMMIX

|                                      | Consecutive Jobs |        | Simultaneous Jobs |        |
|--------------------------------------|------------------|--------|-------------------|--------|
|                                      | 1                | 8      | 1                 | 8      |
|                                      | REBUS3           | COMMIX | REBUS3            | COMMIX |
| Total Wallclock Time<br>(in seconds) |                  | 4626   |                   | 4325   |

As Table 5 shows, competition for system resources by the nine jobs did not degrade the overall performance. In fact, the Model 560 was able to overlap I/O and CPU resources so as to improve the total wall-clock time significantly.

Arthur Smith (Materials Science) benchmarked an electronic structures code on both the IBM RS6000 Model 560 and the DECstation 5000/240. Three test cases for this benchmark were executed. A significant amount of the execution time was spent performing Fast Fourier Transforms (FFTs) and matrix-vector multiplication. Table 6 gives the results (in seconds) of the three cases that were executed on the two workstations.



Table 6: Electronic Structures Code

|                      | CASE 1       | CASE 2 | CASE 3  |
|----------------------|--------------|--------|---------|
|                      | (in seconds) |        |         |
| DECstation 5000/240  | 297.4        | 736.2  | 1,444.7 |
| IBM RS6000 Model 560 | 116.8        | 277.4  | 509.7   |

CTD has had the opportunity to provide four workstations for the Laboratory scientists to evaluate over the past eight months. Users have taken advantage of available demonstration units to make acquisition decisions; CTD plans to continue providing access to demonstration workstations as they become available.

## TELECOMMUNICATIONS NEWS

### NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,455 computers at over 1,240 sites. Since the last *Newsletter* article in April 1992 the following universities and organizations have joined BITnet:

German Aerospace--Bremen  
Research Development Corporation of Japan--Tokyo  
State University of Grain--Fortaleza, Brazil  
University of Medical Sciences--Budapest

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the CTD VAX cluster, or MVS Wylbur):

**HELP BITNET NODES**

## VAX/VMS NEWS

### VMS MAXIMUM CPU TIME LIMIT RAISED

On Monday, June 1, 1992, CTD raised the VMS batch job CPU time limit for all queues with a 1 hour limit to 6 hours. The SPECIAL queues are still available to run jobs with longer CPU time requirements. CTD changed the SPECIAL\_X and SPECIAL\_Y queues to permit users to submit jobs with time limits as large as 12 hours without having to notify CTD. Operations will release jobs in the SPECIAL\_X and SPECIAL\_Y queues as the workload and shutdown requirements of the VAX cluster allow. Users who submit jobs with time requirements greater than 12 hours will still need to notify Operations. Raising the CPU time limit permits users to avoid breaking up lengthy executions into several smaller executions and therefore should simplify the use of VMS batch.

Previously, users needed approval in advance from CTD Operations to run SPECIAL\_X jobs longer than 3 hours and SPECIAL\_Y jobs longer than 8 hours. This screening process inconvenienced users. Approvals were often difficult to obtain, especially if the need for extended time was discovered during non-prime periods.

Users who submit large CPU jobs should check the recorded message for scheduled shutdowns of the VMS hosts, particularly if their jobs are submitted for overnight execution (class X) and the elapsed time of those jobs is greater than 9 to 10 hours. CTD occasionally performs system maintenance on the VMS software from 4:00 a.m. until 7:00 a.m., and it is possible that CTD may cancel or suspend active jobs if they conflict with important maintenance efforts or if they impact Laboratory-wide applications or interactive services.

Users should also note that CTD will only refund the last 15 CPU minutes of a user's batch charges if a system shutdown/failure occurs and therefore should consider implementing a checkpoint mechanism in their long running codes.

Users with questions or an interest in executing extended length applications should call the User Services consultants at extension 2-5405.

**VAX CLUSTER UPGRADED**

On Saturday, May 16, 1992, CTD installed the VMS 5.5 upgrade on the Argonne central VAX cluster. The VMS 5.5 upgrade enables CTD to install and make available the POSIX system. POSIX, a component of Open VMS, is a third step for our VMS system in the direction of Open Systems or Unix-style systems.

VMS 5.5 incorporates a new batch and print system that has improved performance for larger clusters. We have deferred implementing the new batch and print queue system until we complete a review of our procedures for batch, print, and server queues. Currently, we have 24 batch queues, 51 print queues, and 9 server queues.

The new batch and print queue systems now allow you to add timestamps and other annotations to your batch job logs. The following example shows how to add hours and minutes to your batch log. If your batch job contained the commands

```
$ SET PREFIX "!5%T "
$ SET DEFAULT [.mysub]
$ FORTRAN mypgm
```

your batch job log file would contain the lines:

```
$ SET PREFIX "!5%T "
15:31 $ SET DEFAULT [.mysub]
15:32 $ FORTRAN mypgm
```

The prefix string ("!5%T " in the above example) is a Formatted ASCII Output (FAO) control string. We have implemented the time prefix as a system default for all batch jobs. To learn more about FAO control string options, enter the DCL command:

```
HELP LEX F$FAO
```

Another feature of the new batch and print queuing system allows you to display the status of batch and print jobs by using the job name. Job name wild cards are allowed. This procedure eliminates the need to remember the job's entry number. The commands

```
$ SHOW ENTRY myjob
$ SHOW ENTRY p*
```

display all of your jobs named "myjob" and all your jobs starting with the character "p," respectively.

To learn more about the VMS 5.5 capabilities and features that are new or changed from previous releases, read the file

```
SYS$HELP:VMS055.RELEASE_NOTES
```

or enter the command:

```
HELP V55
```

**BITS & BYTES****PUBLIC POSTSCRIPT PRINTER AVAILABLE**

CTD has acquired a high-speed networked PostScript printer for public use. The Hewlett-Packard (HP) LaserJet III SI printer can print 17 pages per minute with a duty cycle of 50,000 pages per month. This printer is located in Building 221, Room A-134. It is available as printer queue ANLBWP1 on VAX node ANLCV1 or as the entry anlbwpl in the /etc/printcap file on Unix systems. Computer Operations personnel distribute the output to bins in that room according to the distribution code on the print job.

The HP LaserJet III SI printer has the ability to print on both sides of a sheet of paper (duplex). CTD is currently investigating how to make this capability available to multiple platforms (for example, IBM PCs, Apple Macintoshes, Unix workstations). We will provide instructions in a future *Newsletter*.

**IBM MVS AND CMS USERS CAN NOW PRINT TO ETHERNET-BASED PRINTERS**

CTD has installed a line printer daemon on the VM CMS operating system to allow IBM MVS and CMS users access to TCP/IP Ethernet-based printers that may not be reachable by other methods. A list of currently defined printers appears in Table 7.

To take advantage of this capability, MVS users should use JCL similar to:

```
/*FORMAT PR,DDNAME=ddname,DEST=ANLVM.LPRSERV,FORMS=printer
```



Users of the PRINTPS Wylbur exec should enter ANLVM.LPRSERV,FORMS=printer for the destination.

Users of the PRINTPS cataloged procedure should use JCL similar to:

```
// EXEC PRINTPS,DSN=dsn,
// DEST='ANLVM.LPRSERV,FORMS=printer', ...
```

CMS users of the PRINTPS, LISTPS, and PS execs should specify the "node" as ANLVM, the "dest" as LPRSERV, and the "form" as the Ethernet-based printer they want to reach:

```
PRINTPS fn ft [fm] [node dest form] [options]
LISTPS fn [LISTPS] [fm] [node dest form] [options]
PS fn [SCRIPT] [fm] [node dest form] [options]
```

where

"fn" is the filename of your CMS file.

"ft" is the filetype of your CMS file.

"fm" is the optional file mode of your CMS file.

"node," "dest," and "form" are the node, destination (and printer name if you are using ANLVM LPRSERV as the receiving node).

"options" is the various options available.

For explicit details, enter **HELP PRINTPS**, **HELP LISTPS**, or **HELP PS**.

Alternatively, CMS users can set their default PostScript printer to one of these Ethernet-based printers with the SETPS command:

```
SETPS node dest form
```

An up-to-date list of defined Ethernet-based printers is on VM userid LPDSERV's 191 minidisk in a file named PRINTCAP NAMES.

If you would like your Ethernet-based printer added to those currently defined, or if you experience difficulties or have questions related to Ethernet-based printers, you should contact Mike Thommes at extension 2-5461.

**Table 7: Printers Currently Defined to LPRSERV**

| Public Printers                   |                            |
|-----------------------------------|----------------------------|
| Definition                        | Printer Name (and Aliases) |
| ANLCV1 HP LaserJet III SI printer | anlbwpl                    |
| Private Printers                  |                            |
| Definition                        | Printer Name (and Aliases) |
| Achilles' LaserWriter             | sunlw                      |
| ANLCV1 LaserWriter                | ctdus1                     |
| ANLCV1 LaserWriter                | ctdus2                     |
| ANLCV1 LaserWriter                | ctdsyl                     |
| ANLCV1 LaserWriter                | ctddiv1                    |
| ANLCV1 LaserWriter                | ctdmis1                    |
| ANLCV1 LaserWriter                | ctdmis2                    |
| NPRDC Remote Printer              | PTR600, NPRDC              |
| ANLBEM Xyplex printer             | bemnpc4                    |
| ANLBEM Xyplex printer             | bemnpc5                    |
| RAS HP LaserJet III SI printer    | 208A122                    |
| MCT Laser Printer                 | lw308                      |
| MCT Laser Printer                 | 212a2291                   |
| MCT LaserWriter printer           | lw335                      |
| DEP HP LaserJet II printer        | newlpt                     |

## RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

### IBM Documents

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP Release 2: General Information* (GC23-0362-1) contains overview and basic planning information for the Virtual Machine/Extended Architecture System Product (VM/XA SP) Release 2. Unless specifically stated otherwise, the information in this document applies to both releases of VM/XA SP. This document is for those who must evaluate what the product can do for them and what resources are necessary to run it. This document also is for anyone interested in a general overview of VM/XA SP.

### Adobe Systems Incorporated Documents

*PostScript Language Program Design* (0-201-14396-8) teaches the fundamentals of designing PostScript programs and shows how the language works, so that your programs will be fast, well-behaved, easy to understand, and portable.



This document has 15 chapters, each of which addresses a specific aspect of program design or problem-solving. This document is a companion document to two other documents: *PostScript Language Reference Manual* (0-201-18127-4) and *PostScript Language Tutorial and Cookbook* (0-201-10179-3).

### Cray Research, Inc. Documents

The *Symbolic Machine Instructions Reference Manual* (SR-0085 B) provides reference information on Cray Y-MP, Cray X-MP, and Cray-1 computer systems symbolic machine instructions and is to be used as a reference with the CAL Assembler Version 2 (CAL2). The CAL Assembler Version 2 allows you to express symbolically all hardware functions of a Cray Y-MP, Cray X-MP, and Cray-1 computer system. This detailed and precise level of programming is especially helpful for tailoring programs to the architecture of a Cray mainframe and for writing programs requiring code optimized to the hardware. This document supersedes the *Symbolic Machine Instructions Reference Manual* (SR-0085).

### University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (April 22, 1992) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of March 5, 1992.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD MAY 5, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

**Electronic Mail Alias System.** Rich Carlson (Computing and Telecommunications) reported on the electronic mail post office for domain name `anl.gov` available for use at Argonne. An ANL electronic mail user registers a nickname and a current computer address with the post office.

BITnet and Internet computer users are then able to send mail to that user at a `nickname@anl.gov` type of address. The post office then forwards the mail to the user's computer. ANL users send requests to the post office by sending mail to `alias@anl.gov`. The post office responds by sending mail back to the user.

The post office is accessible from divisional VAXes with Network Job Entry (NJE) or MultiNet, Unix servers and workstations, Apple Macintoshes with QuickMail, personal computers with cc:Mail and a Simple Mail Transport Protocol (SMTP) gateway, IBM mainframes, and any other computer with Transmission Control Protocol/Internet Protocol (TCP/IP) and SMTP or NJE connections. The user can even register from offsite and send to an offsite computer as long it is a valid Internet host and mail address. Mail sent to `alias@anl.gov` with the subject of "help" will receive the instructions on how to use the post office.

This is a Laboratory-wide service, processed on a first-come first-served basis for nickname requests. It is recommended that the nickname be structured as first initial, middle initial, last name, such as RACarlson. The system is not case sensitive, but does preserve the case you give it. The nickname must also be only one word, so the underscore can provide separation, such as `nick_name`. Users can have as many aliases as they want, and the entries are protected by an identifier the user provides. Mail that is not delivered is returned to the sender.

**MVS Batch and VAX/VMS CPU Time Limits.** John Volmer (Computing and Telecommunications) proposed new time limits that CTD may institute on the MVS batch and VAX/VMS systems beginning June 1, 1992. Currently, MVS batch jobs over one hour must make special arrangements with CTD. VMS batch jobs are limited to one hour in the ordinary queues and are placed on hold in the SPECIAL\_X and SPECIAL\_Y queues; however, the operators automatically run jobs of less than three hours.

Under this new proposal, the time limits in both MVS and VMS batch will be increased to 12 hours for all queues and classes. MVS and VMS jobs less than twelve hours will be started immediately. MVS jobs greater than 12 hours will be put on hold, and VMS jobs greater than 12 hours must be submitted to the SPECIAL\_X queue.

In some cases, access to the long times may have to be curtailed by stopping queues or suspending/canceling jobs. On the VAX 8700, where the library system is located, long batch jobs will be suspended at 7:00 a.m. Monday through Friday. When critical changes are made to MVS or VM, jobs may be canceled. The queues may also be curtailed if interactive or critical workloads are impacted.

CTD and the operators are working to be more aware of the status of the long queues. The increased time limit does not change the policy of refunding only the last 15 minutes of CPU time on a long running job. Users should also be careful about submitting long running jobs, since they will be billed for the time used even if their program has not produced output for calculation.

**FDDI Status.** Bob McMahon (Computing and Telecommunications) updated the status of the Fiber Distributed Data Interface (FDDI) installation planning. The Title I Design review was completed in May 1992. The Title II Design review will be complete by early June 1992. The Request for Proposal (RFP) is to be issued the week of June 12, 1992, and installation should take place from August through October 1992. Things are moving along according to the schedule.

**Software Management Program.** Dennis Tussing (Computing and Telecommunications) presented information about the Software Management Program for Argonne. This program is currently under development to DOE, QA, and internal ANL requirements. This program will identify methods, review efficiency and cost effectiveness, report software management in the DOE IRM long-range plan, develop an acquisition-and-approval process, promote resource sharing, be integrated with the Computer Security Program, assure the obeying of copyright laws, and promulgate quality assurance. Like the Computer Security Program, there will be divisional representatives in contact with the Manager. A three-level graded category approach is being adopted by using the exclusion criteria developed by DOE and Argonne. Educational opportunities, workshops, and prepared documentation will be provided.

Some of the DOE exclusion criteria are software integrally embedded in instrumentation associated with an experiment/device, software of a larger non-ADP turnkey system, software in power

transmission system, software undergoing a continuing state of change or prototyping, and system software used to support applications of that listed here. Argonne has developed its own exclusion criteria that include software integrally imbedded, where there is no option but to accept the supplied system in its entirety, standard operating system software acquired with a hardware system, Energy Science and Technology Software Center (formerly NESCC) software, "shrink-wrap" software under \$5,000, and regular updates or new releases of software already in place.

The three-level graded compliance approach will depend on cost, impact, degree of customization, and criticality of the software. The three levels are determined by a mix of these factors, with specific guidelines within each category.

In May 1992, a Statement of Compliance will be developed. The ANL Policy statement will be written in June 1992, and both statements will be submitted for approval by the CPC in July 1992. From July through September 1992, the generic software management plans for different types of software and category levels will be generated and methods identified for each type of software initiative. In December 1992, the quality assurance policies and procedures will be defined and a ANL Software Management Guide published by March 1993.

**Workstation Testing Results.** Larry Rudinski (Computing and Telecommunications) and Steve Karlovsky (Computing and Telecommunications) introduced several users who reported on the performance of several workstations CTD installed for short periods of user testing. These computers were made available to the user community because of the interest of various divisions in moving to workstation environments and to provide some means for those involved to make intelligent decisions. The presenters included Art Smith (Materials Science Division), Ziya Guvenc (Chemistry), Bob Schmitt (Materials and Components Technology), Keith Derstine (Reactor Analysis), and Pat Garner (Reactor Analysis). In general, users seemed most impressed with the speed of the IBM Model 560 but concluded that the best machine for price and performance depends greatly on the applications to be run. Art Smith did some testing on C library functions and found that some functions would vary by a factor of 2 to 50 for the time they



took on various machines. Installed memory also had a big affect on the larger codes, slowing the calculation appreciably when memory was low.

As new machines with new chips come out, CTD hopes to be able to continue this testing availability for the user community.

The Computer Users Group normally meets on the first Tuesday of each month at 3:00 p.m. in Building 221, Room A-216. Contact Pat Garner (extension 2-4872) or Ken Miles (extension 2-3095) to be placed on the distribution list for meeting announcements or for additional information.

The CUG meeting adjourned at 4:35 p.m.

Ken Miles, CUG Secretary

#### **MINUTES OF MED USERS ALLIANCE (MEDUSA) MEETING HELD MARCH 26, 1992**

Chairperson Rick Fenner (Advanced Photon Source) opened the meeting at 12:05 p.m. Lee Wagar (Information and Publishing) mentioned that Apple Macintosh public files are available from CTD through AppleShare; these files include "ANL Public Devices," which contains descriptions and specifications of scanners, printers, etc., available to users. Other public files are HyperCard 2.1, Systems 6.0.7 and 7, and virus protection software. Lee can provide instructions to Apple Macintosh users for accessing these files.

Answering a question from Marita Moniger (Technical Communication Services), Joe Paulini (Media Services) said that a printed piece will fade over time and that inks and paper stocks will also vary from lot to lot. If a customer wishes to match a printed piece that was done some years back, a printed sample should be submitted with the new job. When a customer requests a specific PMS color, Media Services (MED) will match it. New PMS color swatch books should be ordered every 1 to 2 years.

Rick Fenner asked if MED could provide some type of sign-off procedure when returning original material to users. Joe Paulini responded that although long-standing MED policy has been to return all such material to the user, a sign-off system could be established for users who want one. In

discussing MED costs versus those of commercial photo labs, Rick Fenner noted that MED seems to be competitive except in the area of duplicate slides (because of the low volume and the high cost to produce them).

Joe Paulini described the preliminary version of the MED user survey, which has been sent to about 90 users; responses are now being tabulated. Joe handed out copies of the survey to meeting participants, mentioning that they can also respond and return the form to Rich Nixon (Media Services). Ultimately, the final version of the survey will be sent to about 400 people (including many on the MEDUSA mailing list). "Total quality management" will be the focus of MED's reaction to the overall survey response.

A new Kodak 1392 PostScript printer will be installed in Building 222 in June 1992, beginning a six-month trial period. Lee Wagar mentioned that users will be able to send jobs to this printer electronically (a feature that the Xerox DocuTech will not be able to provide). The 1392 can make any desired number of originals up to 125 and can store jobs (with PostScript compiled). The printer will use LionHeart software running on a Sun Sparc workstation. While initial access will be via Ethernet and an AlisaTalk-type queue, Apple Macintosh users will eventually be able to send files by using a simple on-screen form. The printing speed is 92 copies per minute, and the 1392 will handle runs of up to 25,000 impressions. The niche for the Kodak 1392 is high-speed, on-demand printing. MED will publicize the new printer through *Argonne Week*. Bill Jepsen (Media Services) noted that the Kodak will remain in MED through a General Services Administration approved lease that will be less costly than the purchase of this machine.

Chuck Malefyt, MEDUSA Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD MAY 13, 1992**

Lee Wagar (Information and Publishing) opened the meeting at 11:10 a.m. in Building 221, Room A-216.

The meeting started with some general questions raised by the people attending. A comment was



made that the keyboard mapping in System 7 is different from the previous systems. People who are used to the various command-option and command-option-shift sequences might have trouble getting used to the new mappings in System 7. A method for reverting to the old keyboard mappings will be put on the AppleTalk Public Volume soon.

This meeting is the last one until September 1992. A message that the meetings have been suspended until September 1992 will be sent to all people on the mailing list. If something of special interest comes up before that time and there is interest in holding a meeting before September 1992, a notice will be sent out by electronic mail.

Lee Wagar talked about what is available from Media Services (MED). Information about the various input and output devices at MED is posted on the Public Volume in a folder called ANL Public Devices. A list of software that MED is familiar with and is willing to give advice about was handed out along with the telephone numbers of the various departments in MED. The handout included instructions on how to get to the Public Volume as well as a list of current folders on the Public Volume. A suggestion was made that System 7 users create an alias to the Public Volume to automate mounting the volume. The last pages of the handout contained a price list for various routine jobs performed by MED. Lee also pointed out that free calendars are available at MED and that tours are given by appointment.

The Macintosh Users Group normally meets on the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Information and Publishing), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at QuickMail address `lee_wagar@qmgate.anl.gov` or at extension 2-5603.

The meeting adjourned at 11:35 p.m.

Jeff Dow, Acting Macintosh Users Group Secretary

# WORKLOAD STATISTICS (MARCH 31 THROUGH APRIL 29, 1992)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,209              | 1,206        | 417                 |
| Wylbur      | 1,541              | 1,540        | 291                 |
| MVS TSO     | 57                 | 57           | 25                  |
| CICS        | 2,293              | 2,286        | 233                 |
| MVS Batch   | 2,293              | 2,284        | 614                 |
| VAX/VMS     | 673                | 834          | 170                 |
| Cray        | 357                | 352          | 98                  |
| Unix        | 137                | 135          | *                   |
| All Systems | 2,293              | 2,286        | 937                 |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |       |         |        | SESSION TIME (HRS) | CPU TIME (HRS) |
|--------------------|--------------------------------|-------|---------|--------|--------------------|----------------|
|                    | PRIME                          | NIGHT | WEEKEND | TOTAL  |                    |                |
| <b>INTERACTIVE</b> |                                |       |         |        |                    |                |
| CMS                | 11,319                         | 3,255 | 2,117   | 16,691 | 42,990             | 98.52          |
| Wylbur             | 6,028                          | 231   | 215     | 6,474  | 5,965              | 4.62           |
| MVS TSO            | 761                            | 6     | 6       | 773    | 649                | 2.50           |
| CICS               | *                              | *     | *       | *      | *                  | *              |
| VAX/VMS            | 8,144                          | 4,852 | 2,862   | 15,858 | 39,455             | 102.89         |
| Cray               | 579                            | 66    | 55      | 700    | 628                | 97.35          |
| <b>IBM BATCH</b>   |                                |       |         |        |                    |                |
| Class U            | 9,783                          | 1,843 | 983     | 12,609 | **                 | 20.49          |
| Class W            | 17,417                         | 3,575 | 646     | 21,638 | **                 | 99.83          |
| Class X            | 5                              | 574   | 44      | 623    | **                 | 37.00          |
| Class Y            | 0                              | 0     | 281     | 281    | **                 | 16.46          |
| Nonmain            | 16,362                         | 2,006 | 1,065   | 19,433 | **                 | 0.00           |
| Total              | 43,567                         | 7,998 | 3,019   | 54,584 | **                 | 173.78         |
| <b>CRAY BATCH</b>  |                                |       |         |        |                    |                |
| u                  | 579                            | 66    | 55      | 700    | **                 | 0.76           |
| w                  | 697                            | 273   | 14      | 984    | **                 | 0.76           |
| x                  | 794                            | 5     | 22      | 821    | **                 | 6.10           |
| y                  | 2,019                          | 0     | 72      | 2,091  | **                 | 17.26          |
| Total              | 4,089                          | 344   | 163     | 4,596  | **                 | 24.88          |
| <b>VMS BATCH</b>   |                                |       |         |        |                    |                |
| W BATCH            | 46                             | 273   | 71      | 390    | **                 | 10.11          |
| X BATCH            | 5                              | 5     | 1       | 11     | **                 | 6.57           |
| Y BATCH            | 0                              | 0     | 0       | 0      | **                 | 0.00           |
| Total              | 51                             | 278   | 72      | 401    | **                 | 16.68          |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               |            |
| Local                       | 54,961,758 |
| Remote                      | 48,069,614 |
| Fiche                       | 37,429,293 |
| Tape Mounts                 | 7,144      |
| Microfiche Developed        | 4,542      |
| Microfiche Frames Developed | 838,939    |

## GRAPHICS

|                   | # OF JOBS | # OF FRAMES |
|-------------------|-----------|-------------|
| CalComp Jobs      | 53        | *           |
| Matrix 35mm Color | 14        | 30          |
| Matrix-8 x 10     | 0         | 0           |
| Matrix-Negative   | 1         | 2           |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 24,096 |
| Round Tapes Saved           | 66     |
| Round Tapes Released        | 1,046  |
| Cartridges Saved            | 1,455  |
| Cartridges Released         | 1,176  |
| Datasets Exported to Tape   | 446    |
| Datasets Imported from Tape | 834    |

\* not available  
 \*\* not applicable

# AVAILABILITY STATISTICS, BY MACHINE (MARCH 31 THROUGH APRIL 29, 1992)

|                                    | Monthly<br>Totals | Hardware | Scheduled<br>Software | Other | Hardware | Unscheduled<br>Software | Other |
|------------------------------------|-------------------|----------|-----------------------|-------|----------|-------------------------|-------|
| CMS                                |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 4.00              | 1.00     | 3.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 5.41              | 1.63     | 3.78                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| NYLBUR                             |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 11.00             | 1.00     | 9.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 15.16             | 1.78     | 9.05                  | 0.00  | 4.33     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 680.83            |          |                       |       | 680.83   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| MVS TSO                            |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 9.00              | 1.00     | 7.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 14.58             | 1.78     | 8.46                  | 0.00  | 4.33     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 681.41            |          |                       |       | 681.41   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| JES3                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 10.00             | 1.00     | 7.00                  | 0.00  | 2.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 17.60             | 1.73     | 7.20                  | 0.00  | 8.66     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 339.20            |          |                       |       | 339.20   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| CICS                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| VAX/VMS (VAX 8700)                 |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 2.00              | 0.00     | 2.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 3.95              | 0.00     | 3.95                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| VAX/VMS (VAX 6410)                 |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 1.00              | 0.00     | 1.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 3.50              | 0.00     | 3.50                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| CRAY                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 9.00              | 3.00     | 2.00                  | 0.00  | 4.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 21.21             | 8.93     | 3.53                  | 0.00  | 8.75     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 168.69            |          |                       |       | 168.69   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 3.00              | 0.00     | 0.00                  | 0.00  | 3.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 1.00              | 0.00     | 0.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 83.66             |          |                       |       | 83.66    |                         |       |



## COMPUTING CENTER USE IN DOLLARS BY COST CENTER (MARCH 31 THROUGH APRIL 29, 1992)

| CC                                                    | CCNAME                            | IBM      | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|-------------------------------------------------------|-----------------------------------|----------|----------|----------|----------|------------|-----------|
| <b>ADVANCED PHOTON SOURCE</b>                         |                                   |          |          |          |          |            |           |
| 131                                                   | ACCELERATOR SYS DIV               | \$102    | \$1      | \$0      | \$3      | \$180      | \$287     |
| 132                                                   | EXP FACIL DIV                     | \$85     | \$0      | \$0      | \$1      | \$121      | \$208     |
| 133                                                   | APS PROJECT OFFICE                | \$0      | \$0      | \$0      | \$17     | \$0        | \$17      |
| 272                                                   | ADVANCED PHOTON SOURCE            | \$78     | \$0      | \$0      | \$82     | \$49       | \$209     |
| 340                                                   | APS ASD MANAGEMENT                | \$0      | \$0      | \$0      | \$0      | \$6,820    | \$6,820   |
| 341                                                   | APS ACCELERATOR PHYSICS           | \$412    | \$2,168  | \$0      | \$28     | \$139      | \$2,747   |
| 342                                                   | APS DIAGNOSTICS                   | \$3      | \$15     | \$0      | \$0      | \$42       | \$60      |
| 343                                                   | APS LINAC                         | \$0      | \$124    | \$0      | \$3      | \$0        | \$126     |
| 344                                                   | APS RF                            | \$3      | \$33     | \$0      | \$0      | \$141      | \$177     |
| 345                                                   | APS VACUUM/MECHANICAL ENG.        | \$9      | \$2,011  | \$1,417  | \$258    | \$306      | \$4,001   |
| 347                                                   | APS CONTROLS                      | \$52     | \$33     | \$0      | \$0      | \$6        | \$91      |
| 348                                                   | APS MAGNETS                       | \$58     | \$63     | \$0      | \$45     | \$35       | \$200     |
| 349                                                   | APS POWER SUPPLIES                | \$34     | \$0      | \$0      | \$1      | \$0        | \$35      |
| 350                                                   | APS DIVISION MANAGEMENT           | \$0      | \$10     | \$0      | \$0      | \$0        | \$10      |
| 351                                                   | APS INSERTION DEVICES             | \$40     | \$821    | \$0      | \$59     | \$66       | \$986     |
| 352                                                   | APS ENGINEERED SYSTEMS            | \$30     | \$2,688  | \$0      | \$146    | \$872      | \$3,737   |
| 353                                                   | APS BEAM LINE INSTRUMENTATION     | \$21     | \$4,610  | \$0      | \$585    | \$5,436    | \$10,652  |
| 360                                                   | APS CONVENTIONAL FACILITIES       | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 361                                                   | APS PROJECT DIRECTION             | \$74     | \$20     | \$0      | \$250    | \$423      | \$768     |
| SUBTOTAL                                              |                                   | \$1,008  | \$12,597 | \$1,417  | \$1,481  | \$14,636   | \$31,139  |
| <b>ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH</b> |                                   |          |          |          |          |            |           |
| 110                                                   | BIO & MED RES DIV                 | \$873    | \$2,447  | \$75     | \$835    | \$969      | \$5,199   |
| 125                                                   | TECHNOLOGY TRANSFER CENTER        | \$86     | \$9      | \$0      | \$4      | \$117      | \$216     |
| 149                                                   | ENVIRONMENTAL RESEARCH DIV        | \$1,890  | \$251    | \$275    | \$914    | \$1,168    | \$4,499   |
| 155                                                   | ENERGY SYSTEMS DIVISION           | \$1,939  | \$2,614  | \$681    | \$816    | \$1,275    | \$7,324   |
| 165                                                   | ENV ASSESS & INFO SCI DIV         | \$5,106  | \$4,138  | \$295    | \$890    | \$3,632    | \$14,061  |
| 274                                                   | ENER/ENV/BIO RES PROG ADM         | \$94     | \$0      | \$0      | \$3      | \$214      | \$311     |
| SUBTOTAL                                              |                                   | \$9,989  | \$9,458  | \$1,326  | \$3,462  | \$7,375    | \$31,610  |
| <b>ENGINEERING RESEARCH</b>                           |                                   |          |          |          |          |            |           |
| 102                                                   | EBR-II PROJECT-ANL WEST           | \$1,545  | \$15     | \$160    | \$2,189  | \$365      | \$4,274   |
| 104                                                   | FUELS AND PROCESSES DIVISION      | \$1,510  | \$147    | \$44     | \$480    | \$386      | \$2,567   |
| 107                                                   | CHEMICAL TECHNOLOGY DIVISION      | \$689    | \$214    | \$640    | \$529    | \$385      | \$2,456   |
| 112                                                   | REACTOR ENGINEERING DIVISION      | \$2,485  | \$1,142  | \$487    | \$770    | \$1,948    | \$6,832   |
| 114                                                   | MATLS & COMP TECH DIV             | \$5,474  | \$6,112  | \$462    | \$896    | \$2,952    | \$15,895  |
| 115                                                   | ENGINEERING PHYSICS DIVISION      | \$3,123  | \$1,998  | \$3,194  | \$1,921  | \$1,342    | \$11,578  |
| 116                                                   | REACTOR ANALYSIS DIVISION         | \$30,861 | \$7,756  | \$22,006 | \$9,288  | \$8,686    | \$78,597  |
| 117                                                   | ENGINEERING PHYSICS ANL-WEST      | \$4,841  | \$257    | \$2,511  | \$228    | \$320      | \$8,156   |
| 118                                                   | FUEL CYCLE DIVISION               | \$984    | \$2,842  | \$4      | \$232    | \$334      | \$4,395   |
| 171                                                   | ENG RES PROG DIR                  | \$6      | \$0      | \$0      | \$0      | \$106      | \$112     |
| 197                                                   | SPECIAL PROJECTS OFFICE           | \$618    | \$1      | \$0      | \$16     | \$194      | \$830     |
| 211                                                   | ENGR PHYS DIV - DESIGN ENGR       | \$22     | \$0      | \$0      | \$12     | \$108      | \$142     |
| 269                                                   | ANALYTICAL CHEMISTRY LABORATORY   | \$135    | \$3      | \$0      | \$10     | \$109      | \$258     |
| 271                                                   | ENG RES PROG ADMIN                | \$271    | \$0      | \$0      | \$47     | \$356      | \$674     |
| SUBTOTAL                                              |                                   | \$52,565 | \$20,486 | \$29,506 | \$16,618 | \$17,591   | \$136,766 |
| <b>PHYSICAL RESEARCH</b>                              |                                   |          |          |          |          |            |           |
| 105                                                   | MATERIALS SCIENCE DIVISION        | \$500    | \$2,858  | \$280    | \$934    | \$577      | \$5,149   |
| 109                                                   | PHYSICS DIV                       | \$21     | \$644    | \$24     | \$864    | \$931      | \$2,483   |
| 120                                                   | CHEMISTRY DIV                     | \$1,321  | \$1,525  | \$782    | \$302    | \$536      | \$4,466   |
| 136                                                   | INT PULSE NEUT SOURCE PROG        | \$-882   | \$94     | \$36     | \$276    | \$238      | \$-238    |
| 137                                                   | HIGH ENERGY PHYSICS DIV           | \$566    | \$1,366  | \$299    | \$805    | \$833      | \$3,869   |
| 139                                                   | DIV OF EDUCATIONAL PROGRAMS       | \$1,170  | \$0      | \$0      | \$203    | \$173      | \$1,546   |
| 145                                                   | MATHAMATICS & COMPUTER SCI DIV    | \$106    | \$50     | \$524    | \$32     | \$1,171    | \$1,883   |
| 146                                                   | CTD DIV - SCI APPL & RES          | \$34     | \$220    | \$70     | \$47     | \$1,813    | \$2,204   |
| 273                                                   | PHYSICAL RESEARCH PROGRAM ADMIN   | \$67     | \$10     | \$0      | \$34     | \$113      | \$224     |
| SUBTOTAL                                              |                                   | \$2,923  | \$6,767  | \$2,014  | \$3,496  | \$6,386    | \$21,586  |
| <b>EXTERNAL</b>                                       |                                   |          |          |          |          |            |           |
| 751                                                   | FERMI NATIONAL LABORATORY         | \$479    | \$0      | \$0      | \$818    | \$521      | \$1,818   |
| 752                                                   | NAVY                              | \$6,469  | \$0      | \$0      | \$873    | \$4,392    | \$11,734  |
| 753                                                   | MORGANTOWN ENERGY TECH CENTER     | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 754                                                   | DEPARTMENT OF ENERGY AT ANL       | \$0      | \$9      | \$0      | \$16     | \$0        | \$26      |
| 760                                                   | ABBOTT LABORATORIES               | \$3      | \$0      | \$49     | \$0      | \$0        | \$52      |
| 763                                                   | GENERAL ELECTRIC COMPANY          | \$0      | \$0      | \$7      | \$0      | \$1        | \$37      |
| 766                                                   | BECHTEL NATIONAL, INC.            | \$0      | \$0      | \$0      | \$150    | \$0        | \$164     |
| 777                                                   | UNIVERSITY OF CHICAGO AT ANL      | \$14     | \$0      | \$0      | \$0      | \$0        | \$6       |
| 778                                                   | ARGONNE CREDIT UNION              | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 779                                                   | UNIVERSITY OF ILLINOIS AT CHICAGO | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 780                                                   | NEW BRUNSWICK LABORATORY          | \$10     | \$0      | \$0      | \$0      | \$0        | \$10      |
| 782                                                   | PACKER ENGINEERING                | \$3      | \$23     | \$0      | \$0      | \$0        | \$26      |
| 783                                                   | WEST VALLEY NUCLEAR SERVICES CO   | \$25     | \$0      | \$0      | \$0      | \$9        | \$35      |
| 784                                                   | SSC LABORATORY                    | \$0      | \$51     | \$168    | \$0      | \$0        | \$218     |
| 790                                                   | GRUMANN AEROSPACE                 | \$0      | \$0      | \$0      | \$0      | \$40       | \$40      |
| 791                                                   | LAWRENCE LIVERMORE                | \$0      | \$0      | \$0      | \$65     | \$0        | \$65      |
| SUBTOTAL                                              |                                   | \$7,022  | \$113    | \$224    | \$1,923  | \$4,963    | \$14,244  |

| CC       | CCNAME                               | IBM       | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|----------|--------------------------------------|-----------|----------|----------|----------|------------|-----------|
|          | OPERATIONS                           |           |          |          |          |            |           |
| 143      | SUPP SERV DIV - ELEC DEPT            | \$200     | \$3      | \$0      | \$282    | \$401      | \$886     |
| 148      | HUMAN RESOURCES-MEDICAL DEPT         | \$5,280   | \$0      | \$0      | \$219    | \$850      | \$6,350   |
| 150      | SUPPORT SERV DIV - SPEC MATLS        | \$216     | \$0      | \$0      | \$31     | \$170      | \$417     |
| 161      | IPD-TECH INFO SERV                   | \$499     | \$24,367 | \$0      | \$11,362 | \$1,919    | \$38,147  |
| 201      | OFFICE OF THE DIRECTOR               | \$217     | \$0      | \$0      | \$162    | \$120      | \$499     |
| 202      | OFC OF CHIEF OPER OFCR               | \$19      | \$0      | \$0      | \$119    | \$112      | \$249     |
| 210      | SUPP SERV DIV - CENT SHOPS           | \$318     | \$0      | \$0      | \$83     | \$562      | \$963     |
| 216      | SUPPORT SERVICES DIVISION            | \$150     | \$0      | \$0      | \$27     | \$114      | \$291     |
| 222      | PLANT FAC & SERV-LODGING FAC         | \$0       | \$0      | \$0      | \$1      | \$100      | \$101     |
| 232      | SUPPORT SERV DIV - SECURITY          | \$283     | \$0      | \$0      | \$5      | \$162      | \$449     |
| 234      | ESH DIV-HEALTH PHY                   | \$275     | \$368    | \$0      | \$451    | \$214      | \$1,308   |
| 235      | ESH DIV                              | \$1,278   | \$46     | \$0      | \$252    | \$449      | \$2,025   |
| 236      | ESH DIV-FIRE DEPT                    | \$7       | \$0      | \$0      | \$0      | \$101      | \$107     |
| 245      | COMPUTING AND TELECOM DIV            | \$20,599  | \$0      | \$0      | \$4,202  | \$3,662    | \$28,462  |
| 247      | COMP & TEL DIV - COM SERV            | \$2,267   | \$0      | \$0      | \$405    | \$1,455    | \$4,127   |
| 260      | IPD-MEDIA SERV DEPT                  | \$220     | \$1,149  | \$0      | \$27     | \$301      | \$1,697   |
| 265      | IPD-TECH COM SERV                    | \$67      | \$0      | \$0      | \$1      | \$10       | \$77      |
| 275      | OFFICE OF PUBLIC AFFAIRS             | \$600     | \$0      | \$0      | \$46     | \$164      | \$810     |
| 276      | OFC PUB AF - MOTN PIC UNIT           | \$43      | \$0      | \$0      | \$0      | \$14       | \$58      |
| 288      | INF & PUBL DIV                       | \$153     | \$20     | \$0      | \$7      | \$-681     | \$-500    |
| 296      | TELECOM COST/RECOVERY                | \$0       | \$0      | \$0      | \$65     | \$0        | \$65      |
| 315      | SUPP SERV DIV-MATLS & SERV           | \$5,080   | \$0      | \$0      | \$1,258  | \$916      | \$7,254   |
| 316      | PLANT FAC & SERV-VEH MAINT           | \$0       | \$0      | \$0      | \$0      | \$168      | \$168     |
| 317      | PLANT FAC & SERV-DRIVGRIG SERV       | \$32      | \$0      | \$0      | \$1      | \$100      | \$134     |
| 319      | SUPP SERV DIV-TRAVEL OFC             | \$0       | \$0      | \$0      | \$0      | \$100      | \$100     |
| 322      | SUPP SERV DIV-PROCUREMENT            | \$41      | \$1      | \$0      | \$16     | \$103      | \$161     |
| 331      | EQO-INDIRECT                         | \$3       | \$0      | \$0      | \$2      | \$0        | \$5       |
| 333      | ENVIR SAFE HEALTH & QA OVERSIGH      | \$2,118   | \$28     | \$0      | \$231    | \$672      | \$3,049   |
| 336      | SUPP SERV DIV - INSPECTION           | \$16      | \$0      | \$0      | \$0      | \$18       | \$34      |
| 400      | OFC OF CHIEF FIN OFFICER             | \$44,573  | \$0      | \$0      | \$3,102  | \$11,319   | \$58,994  |
| 401      | ACCOUNTING                           | \$1       | \$0      | \$0      | \$10     | \$0        | \$11      |
| 403      | BUDGET OFFICE                        | \$3       | \$0      | \$0      | \$0      | \$0        | \$3       |
| 410      | HUMAN RESOURCES DEPARTMENT           | \$24,471  | \$60     | \$0      | \$1,412  | \$2,815    | \$28,759  |
| 412      | AFFIRM ACTION PROGRAM                | \$63      | \$0      | \$0      | \$45     | \$101      | \$209     |
| 501      | PLANT FAC & SERV-BLDG MAINT          | \$283     | \$0      | \$0      | \$50     | \$232      | \$565     |
| 502      | PLANT FAC & SERV-INSTALLATIONS       | \$34      | \$0      | \$0      | \$5      | \$100      | \$139     |
| 503      | PLANT FAC & SERV-GROUNDS             | \$0       | \$0      | \$0      | \$0      | \$100      | \$100     |
| 504      | PLANT FAC & SERV-CUSTODIAL           | \$3       | \$0      | \$0      | \$0      | \$100      | \$103     |
| 505      | PLANT FAC & SERV-WASTE MGMT OP       | \$60      | \$0      | \$0      | \$75     | \$100      | \$235     |
| 506      | PLANT FAC & SERV-PLANT MGR OFC       | \$497     | \$0      | \$0      | \$36     | \$352      | \$886     |
| 509      | PLANT FAC & SERV-OPERATION DIN       | \$0       | \$0      | \$0      | \$10     | \$36       | \$46      |
| 510      | PLANT FAC & SERV-UTILITY SYST        | \$0       | \$0      | \$0      | \$2      | \$100      | \$102     |
| 512      | PLANT FAC & SERV-FAC PLNG/ENG        | \$793     | \$72     | \$0      | \$115    | \$215      | \$1,195   |
| 530      | SITE MGRS OFC-ANL WEST               | \$109     | \$0      | \$0      | \$22     | \$101      | \$232     |
| 531      | HUMAN RESOURCES-AW                   | \$230     | \$0      | \$0      | \$18     | \$100      | \$347     |
| 532      | SPECIAL MATLS-ANL WEST               | \$1,133   | \$0      | \$0      | \$229    | \$463      | \$1,826   |
| 533      | ACCOUNTING-ANL WEST                  | \$0       | \$0      | \$0      | \$0      | \$100      | \$100     |
| 534      | PURCHASING-ANL WEST                  | \$0       | \$0      | \$0      | \$0      | \$100      | \$100     |
| 535      | SECURITY - ANL WEST                  | \$0       | \$0      | \$0      | \$0      | \$100      | \$100     |
| 536      | ENVIRONMENT, SAFETY & HEALTH-AW      | \$6       | \$0      | \$0      | \$0      | \$100      | \$106     |
| 537      | INFORMATION SERVICE-ANL WEST         | \$0       | \$0      | \$0      | \$0      | \$100      | \$100     |
| 538      | SUPPLY-AW                            | \$134     | \$0      | \$0      | \$28     | \$100      | \$262     |
| 548      | ANL WEST GENERAL EXPENSE             | \$174     | \$0      | \$0      | \$30     | \$0        | \$203     |
| 550      | COMPUTER APPL & SERV - ANL-W         | \$125     | \$0      | \$0      | \$20     | \$111      | \$256     |
| 554      | MACHINE SHOP-ANL WEST                | \$32      | \$0      | \$0      | \$7      | \$100      | \$140     |
| 556      | SITE ENGRG-ANL WEST                  | \$111     | \$0      | \$0      | \$15     | \$100      | \$226     |
| 557      | PLANT SERVICES-AW-SERVICE REQ        | \$144     | \$1      | \$0      | \$14     | \$100      | \$259     |
| 558      | PLANT SERVICES-AW-FUNCTION           | \$3       | \$0      | \$0      | \$0      | \$0        | \$3       |
| 561      | OFC OF QUALITY ASSURANCE - AW        | \$9       | \$0      | \$0      | \$0      | \$101      | \$110     |
| 570      | ENVIRON HEALTH SAFETY QUAL ASSURANCE | \$62      | \$0      | \$7      | \$2      | \$2        | \$73      |
| SUBTOTAL |                                      | \$113,031 | \$26,117 | \$7      | \$24,503 | \$29,611   | \$193,268 |
| TOTAL    |                                      | \$186,538 | \$75,537 | \$34,494 | \$51,484 | \$80,561   | \$428,613 |

## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance                                                     | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|--------------------------------------------------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center                                                      | 2-5421                                | 8-252-5421        | 252-5421                   |
| Current System Status Recorded Message                                         | 2-5466                                | 8-252-5466        | 252-5466                   |
| User Consultant                                                                | 2-5405                                | 8-252-5405        | 252-5405                   |
| Documentation                                                                  | 2-5405                                | 8-252-5405        | 252-5405                   |
| Computer Operations                                                            | 2-5421                                | 8-252-5421        | 252-5421                   |
| VM/SP Operator                                                                 | 2-8442                                | 8-252-8442        | 252-8442                   |
| RADS Maintenance                                                               | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service                                                      | 1-800-332-1478 (only within Illinois) |                   |                            |
| <b>CICS, CMS, Wylbur, and TSO Interactive Computing Services</b>               |                                       |                   |                            |
| IBM 3270 Protocol Converter                                                    |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-3270                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-3270                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-3219                   |
| X.25 Terminal Multiplexor                                                      |                                       |                   |                            |
| 300 to 19.2K Bits Per Second(Onsite)                                           | 2-2525                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-2525                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-2519                   |
| IBM 3174 Cluster Controller                                                    | 2-3174                                | n.a.              | n.a.                       |
| 1,200 Bits Per Second Full-Duplex<br>(Bell 212 and Hayes Compatible Modems)    | 2-2212                                | n.a.              | 252-2212                   |
| 1,200 Bits Per Second Full-Duplex<br>(Vadic 3400 Compatible Modems)            | 2-7612                                | n.a.              | 252-7612                   |
| 300 Bits Per Second                                                            | 2-7603*                               | n.a.              | 252-7603*                  |
| * When using a 300 bits per second modem, you must use a capital "P" to logon. |                                       |                   |                            |
| <b>Batch Remote Job Entry Service</b>                                          |                                       |                   |                            |
| 2,000 or 2,400 Bits Per Second<br>(Bell 201A and 201C Compatible Modems)       | 2-7989                                | n.a.              | 252-7989                   |
| 4,800 Bits Per Second<br>(Bell 208B Compatible Modems)                         | 2-7573                                | n.a.              | 252-7573                   |
| <b>Central DEC VAX Cluster</b>                                                 |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-8700                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-8700                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-8745                   |
| <b>Argonne TCP/IP Network</b>                                                  |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-5588                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-5588                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-4726                   |
| <b>Argonne ESnet Dial-Up</b>                                                   |                                       |                   |                            |
| 300 to 19.2K Bits Per Second                                                   | 2-7920                                | n.a.              | 252-7920                   |

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

|                       | MVS JES3<br>Batch, UNICOS<br>Wylbur,<br>and TSO | VM/XA                        | VMS                          |
|-----------------------|-------------------------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00                    | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                                     | 00:00-24:00                  | 00:00-24:00                  |

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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Argonne National Laboratory  
Computing and Telecommunications Division  
June and July 1992

## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering seven classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: June 11, 1992 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336, REVISION 2)  
*Recommended Documentation for Computer Users at ANL* (ANL/TM 379, REVISION 3)  
*Guide to Telecommunications at ANL* (ANL/TM 422, REVISION 1)

Instructor: Fred Moszur

### INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: June 12, 1992 (Friday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *VMS User's Manual* (AA-LA98B-TE)

Instructors: Mike Gomberg  
Dave Lifka



## INTRODUCTION TO UNIX

- Goals:** To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.
- Length of Class:** Three 3-hour lectures and three 1-hour labs
- Dates and Time:** June 16, 17, and 18, 1992 (Tuesday, Wednesday, and Thursday)  
9:00 a.m. to noon (Lecture)  
One-hour Lab each afternoon
- Location:** Building 221, Room A-142
- Suggested Reading:** *A Practical Guide to the Unix System* (0-8053-0243-3)
- Instructors:** Pete Bertocini  
Steve Karlovsky

## PROGRAMMING IN VAX/VMS

- Goals:** To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.
- Length of Class:** One 3-hour session
- Date and Time:** June 19, 1992 (Friday), 9:00 a.m. to noon
- Location:** Building 221, Room A-142
- Instructors:** Mike Gomberg  
Dave Lifka

## INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

- Goals:** To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.
- Length of Class:** One 3-hour lecture with lab
- Date and Time:** June 22, 1992 (Monday), 9:00 a.m. to noon
- Location:** Building 221, Room A-142
- Suggested Reading:** *SLAC Wylbur Tutorial*  
*OBS Wylbur Reference Manual*
- Instructor:** Mike Thommes

## INTRODUCTION TO UNICOS

**Goals:** To learn the basics of the Cray UNICOS file system, space management, and shell programming. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.

**Length of Class:** One 3-hour session

**Date and Time:** June 23, 1992 (Tuesday), 1:30 p.m. to 4:30 p.m.

**Location:** Building 221, Room A-142

**Suggested Reading:** *A Practical Guide to the Unix System* (0-8053-0243-3)  
*UNICOS Primer* (SG-2010 6.0)  
*ANL Supplement to the UNICOS Primer* (ANL/TM 460)

**Instructor:** Steve Karlovsky

## USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

**Goals:** To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal capable of using the Hydra Protocol Converter. To learn to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.

**Length of Class:** Two 3-hour lectures with labs

**Dates and Time:** June 24 and 25, 1992 (Wednesday and Thursday), 1:30 p.m. to 4:30 p.m.

**Location:** Building 221, Room A-142

**Suggested Reading:** *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer* (SC23-0368-0)  
*CMS at ANL* (ANL/TM 423, REVISION 2)

**Instructors:** Pete Bertoncini  
Mike Thommes

## USING SAS

|                    |                                                                                                                                                                                                                                                                                                                                                                |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Goals:             | To develop familiarity with the Statistical Analysis System (SAS), to become familiar with its flexible input mechanisms (which are capable of reading virtually any format of data and easily permit selection of data), to learn to use some basic reporting features, and to become aware of the capabilities made possible by a variety of SAS procedures. |
| Prerequisite:      | Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC                                                                                                                                                                                                                                                                                                              |
| Length of Class:   | Two 3-hour sessions                                                                                                                                                                                                                                                                                                                                            |
| Dates and Time:    | July 2 and 7, 1992 (Thursday and Tuesday), 1:30 p.m. to 4:30 p.m.                                                                                                                                                                                                                                                                                              |
| Location:          | Building 221, Room A-261                                                                                                                                                                                                                                                                                                                                       |
| Suggested Reading: | <i>SAS Introductory Guide</i>                                                                                                                                                                                                                                                                                                                                  |
| Instructor:        | Mike Thommes                                                                                                                                                                                                                                                                                                                                                   |

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

| Course Name | Course Title                                |
|-------------|---------------------------------------------|
| SLFTEACH    | Introduction and Advanced Concepts of Xedit |

### DEC CBT Courses on the Central VAX 6410 (node ANLCV1)

(Enter RUN "course name" at the DCL level.)

|         |                                               |
|---------|-----------------------------------------------|
| VMSCAI  | Introduction to VAX/VMS                       |
| LSECAI  | Introduction to the Language Sensitive Editor |
| EVECAI  | Introduction to the Extensible VAX Editor     |
| DTRCAI  | Datatrieve for Users                          |
| DTRPCAI | Datatrieve for Programmers                    |







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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 23

NUMBER 7

JULY 1992

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AUG 18 1992

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN



"First Among Equals"  
Only you can do it!



# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

|                                             |                          | Room  | Phone  | Electronic Mail Address |
|---------------------------------------------|--------------------------|-------|--------|-------------------------|
| Division Director                           | Mike Boxberger (Acting)  | A251  | 2-7155 | boxberger@anl.gov       |
| Computer Protection Program Manager         | Jean Troyer              | A240  | 2-7440 | ljtroyer@anl.gov        |
| Computing and Telecommunications Operations | Larry Amiot              | A237  | 2-5432 | B10523 AT ANLVM         |
| Computer Network                            | Bob McMahon              | B239  | 2-7270 | B17385 AT ANLVM         |
| Data Communications                         | Linda Winkler            | B251  | 2-7236 | B32357 AT ANLVM         |
| Service Engineering                         | Paul Phillips            | D118  | 2-4343 | B36679 AT ANLVM         |
| Network and Computer Operations             | Gary Schlesselman        | A113  | 2-5437 | B09819 AT ANLVM         |
| Day and Weekend Operation                   | Bob Bilshausen           | A134  | 2-5421 |                         |
| Document Distribution Counter               |                          | A134  |        |                         |
| Evening and Overnight Operation             | Mike Monczynski          | A134  | 2-5421 |                         |
| Tape Librarian                              | Sandra Vasko             | A134  | 2-7681 | B18669 AT ANLVM         |
| Trouble Reporting                           |                          | A134  | 2-5421 | noc@anl.gov             |
| Systems Programming                         | John Volmer              | B211  | 2-5449 | volmer@anl.gov          |
| Telephone Services                          | Allen Winter             | B247  | 2-2764 | B07059 AT ANLVM         |
| User Services                               | Fred Moszur              | A121  | 2-7419 | fredm@anl.gov           |
| Computer Use Authorizations                 | Fran Carnaghi            | A147  | 2-5425 | B27596 AT ANLVM         |
| Consultants                                 |                          | A139  | 2-5405 | CONSULT AT ANLVM        |
| Documentation Advice                        |                          | A139  | 2-5405 | CONSULT AT ANLVM        |
| Education and Assistance                    | Pete Bertoncini (Acting) | E101  | 2-4827 | B15013 AT ANLVM         |
| Management Information Systems              | Diane O'Brien            | B151  | 2-7167 | B26424 AT ANLVM         |
| Financial Systems                           | Nick Moore               | C115D | 2-8075 | B31048 AT ANLVM         |
| Human Resource Systems                      | Bob Hischer              | B147  | 2-7272 | B22639 AT ANLVM         |
| Information and Production Services         | Miriam Bretscher         | B139  | 2-7252 | B26187 AT ANLVM         |
| Materials and Plant Systems                 | Rich Slade               | B159  | 2-7329 | B32848 AT ANLVM         |
| Planning, Finance, and Administration       | Mike Boxberger           | A245  | 2-5638 | B34540 AT ANLVM         |
| Scientific Applications and Research        | Charles Mueller          | A231  | 2-7153 | B11284 AT ANLVM         |
| Software Management Program                 | Dennis Tussing           | B228  | 2-4656 | B35139 AT ANLVM         |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 4/490 with Sun OS 4.1.2, a central VAX cluster (a DEC VAX 8700 and DEC VAX 6410) with VMS 5.5, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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## COMPUTING COMMENTS

### NETWORK OPERATIONS CENTER STATUS

On October 1, 1991, the Computing and Telecommunications Division (CTD) established a Network Operations Center (NOC) to improve support for Laboratory computer networks. Network and Computer Operations personnel staff the NOC around-the-clock seven days a week. Using both IBM-developed and locally written tools, the NOC monitors local connections to external networks; Fiber Distributed Data Interface (FDDI) networks; LANmark-connected divisional local area networks (LANs); ANL-W LANs; and the central computing network infrastructure, including Domain Name Service (DNS) and E-mail gateways.

On request, the NOC can provide notification of LAN failures to network managers throughout the Laboratory. To use this service, network managers should contact Jim Love at extension 2-7446. Early failure detection provided by the NOC contributes to less network downtime. The NOC also provides an around-the-clock contact for personnel responsible for the external networks (NSFnet, ESnet, and CICnet). The Network Operations Specialist may use the networking expertise of the CTD Data Communications Group and the CTD Service Engineering Group to resolve particularly difficult network failures. The NOC provides improved response to a wide variety of network failures.

The NOC provides a centralized location for reporting, documenting, and resolving network problems. The NOC operator opens a trouble ticket for each reported network problem. Trouble tickets remain open until the problem is resolved. In the first nine months of NOC operation, more than 350 trouble tickets have been opened and resolved.

To report a suspected network problem, send electronic mail to [noc@anl.gov](mailto:noc@anl.gov) or call (708) 252-5421.

### COMPUTING CLASSES SCHEDULED FOR JULY 1992

During July 1992, CTD will offer three classes. The schedule (with course numbers) is appended to this *Newsletter*. For information about a class, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). To register for a class, see your Training Management System (TMS) representative. A copy of the "Enrollment Form" is on page 6 and a list of TMS representatives is on page 7 of the *Human Resources Program and Course Guide* (Summer 1992). Also, a copy of the "Enrollment Form" is appended to this *Newsletter*. All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class. If necessary, CTD will schedule additional classes. If you cannot attend a class, please cancel your reservation at least *one week* before the class. Since the space in some classes is limited, there will be no refund for those who register for a charged class but do not attend.

*Overview of the X Window System* (one 2-hour session) presents an overview of the X Window System and instructs the beginning user on how to set up and to use the X environment. Topics include the system's design for portability, its organization, its architecture and components, and a general overview of how to run client applications. Emphasis will be on learning how to use X across the network and how to customize and use the window manager and the X environment. This class does not cover X programming, which may be taught in the future. There is a \$25 charge for this class.

*Using Disspla Graphics with X Window Workstations* (one 2-hour session) is for users who want to learn how to tailor their Disspla programs to work with the X Window driver to produce animation. Familiarity with Fortran and Disspla is necessary. There is a \$25 charge for this class.

*Using NCSA Tools for Desktop Scientific Visualization* (one 3-hour session) demonstrates NCSA Imagetool and X DataSlice for viewing data as raster images. Attendees should have a working knowledge of Fortran or C on the computer of their choice. Topics include C and Fortran programs that create data files for NCSA Imagetool and X DataSlice, data



scaling and interpolation, different machines on which NCSA Imagetool and X DataSlice runs (Sun, IBM Personal Computer, Apple Macintosh, or any workstation that runs the X Window System), image file transfer to your workstation, and current output capabilities CTD offers. There is a \$25 charge for this class.

## COMPUTER PROTECTION

### **DOE OBTAINS UPDATE TO VIRUS DETECTION AND ERADICATION PROGRAMS FOR LABORATORY-WIDE USE**

To combat the threat of viruses that can infect MS-DOS computers, the Department of Energy (DOE) headquarters has acquired an update for the agency-wide license of Data Physician Plus. The Data Physician Plus license allows us to make a copy available for every ANL or DOE owned computer running DOS 2.0 or higher software. The acquisition includes one year's maintenance. CTD will distribute other updates as we receive them.

CTD is distributing a 3 1/2-inch diskette with Data Physician Plus Version 3.0D to Argonne's IBM-PC anti-virus team members, who in turn will distribute it to their users. *Data Physician Plus! Computer Virus Protection System* (a document and 3 1/2-inch diskette with Version 3.0D) is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). You may also get a copy of this program from the DOS Public Volume. For further information, see "Public DOS File System Available" in the March 1992 *Newsletter*.

There are some new features in the software package (including recovery features now found in VirHUNT and INSTALL). The update also provides an UNINSTALL feature that removes programs from your disk when they are not needed. Data Physician Plus can find and scan all local (non-network) hard drives. For more information, see the READ.ME file included on the disk.

CTD recommends that you use the following two steps to check for viruses:

First, run the VirHUNT program that comes with Data Physician Plus to see whether your files are infected. When VirHUNT completes with a

**Scan Complete! NO VIRUSES FOUND**

message, no further action is necessary; and you may quit the program.

Second, if VirHUNT does identify an infected file, notify your IBM anti-virus team member or computer protection program representative for help in removing the virus and assuring that it does not spread. Your team member or representative should also notify Jean Troyer, the Computer Program Protection Manager, at extension 2-7440.

## GRAPHICS NEWS

### **POSTSCRIPT PAGE DIMENSION AND SCALING SOLUTIONS AVAILABLE FOR THE MATRIX CAMERA AND THE CALCOMP PLOTTER**

To get a plot of the desired size on the CalComp plotter or the Matrix camera, the PostScript file must contain the appropriate page dimension command (and scaling command if the desired page size differs from the original). Many application software packages, operating systems such as Version 7.x for Apple Macintosh computers, and Microsoft Windows 3.x for IBM-compatible personal computers (PCs) currently only provide page-size descriptions and page borders that correspond to those available on popular physical devices (generally 8 1/2-by-11 or 11-by-17 inches). These devices do not have the large paper format of our CalComp 5835XP wide-bed plotter and do not typically have the appropriate length-to-width ratio and zero-border characteristics for the Matrix camera. Solutions for these problems are now available for PostScript plots originating from Apple Macintosh computers, IBM-compatible personal computers, and mainframe graphics applications from Computer Associates (CA) and SAS Institute.

CTD has created modified print drivers for Apple Macintosh Version 7.x that permit users to create slides and large format plots. Users can retrieve these printer drivers from the Apple



Macintosh public AppleTalk volume on the VAX cluster.

The drivers are easily installed by copying them into your Apple Macintosh system folder. Once in your system folder, select the driver in the Chooser menu in addition to the appropriate printer queue (ANLSLIDE, ANLCC, ANLCCBW). (See "Matrix Slide Camera Now Accepts PostScript from Apple Macintosh, IBM Personal Computer, and Unix Workstations" and "CalComp Plotter Now Accepts PostScript from Apple Macintosh, IBM Personal Computer, and Unix Workstations" in the April 1992 *Newsletter*.) Once selected in the Chooser, the print driver page-size options are available in the Apple Macintosh applications. If you are working with an existing document, you must select a new page size and appropriate scaling in the Apple Macintosh application before printing. For a new document, select the right page size before creating the document. The available CalComp page sizes are 22-by-34 inches, 34-by-44 inches, 34-by-88 inches, and 34-by-132 inches. These sizes are compatible with several popular Apple Macintosh software applications.

CTD has implemented a standalone MS-DOS program named PSSCALE.EXE that allows a PC user to request a scaling factor for a plot that has been drawn for an 8 1/2-by-11 inch or 11-by-17 inch page size. PSSCALE.EXE inserts scaling information in the original PostScript file. The modified PostScript can be automatically sent via the PC lpr or PC Pathworks software to the Matrix and CalComp queues (ANLSLIDE, ANLCC, ANLCCBW). The file can also be stored and forwarded to any other computing platform via file transfer; Kermit is a popular file transfer software package. The file can then be sent to the printer queues from that platform.

The PSSCALE.EXE program is available at the Document Distribution Counter (Building 221, Room A-134) for a small duplication fee. It can also be retrieved from the VAX cluster Pathworks DOS public volume. The user also needs lpr software, PC Pathworks software, or file transfer software. Kermit and lpr distributed with the NCSA Telnet software are available from the Document Distribution Counter for a small duplication fee. Pathworks is a product of Digital Equipment. (See "Pathworks PC Access to Central Printers Improved" in this *Newsletter*.)

A problem may still exist with PostScript plots going to the Matrix camera if the PC application cannot produce a page size that is 11-by-7 1/3 inches. Larger page dimensions will result in the loss of some of the plot image. Generally, larger pages will lose the right-hand side of portrait slides and the top of landscape slides. Smaller page sizes will result in slides with white borders.

The PostScript driver for the CA-Tellagraf and CA-Disspla graphics packages can produce plots of any dimensions. The PostScript bounding box statement (%%BoundingBox) produced by this driver provides page-size dimensions that can result in a plot with the desired page size. However, to be recognized by the PSSCALE.EXE program, the bounding box statement must be in the first 20,000 bytes of the PostScript file. The locally written PostScript driver does not produce a bounding box statement and will not work.

The current 6.06 version of SAS/Graph does not produce PostScript statements for large drawings. Version 6.07 (soon to be available for testing on the VAX) does provide the same bounding box page descriptions described above. To overcome the limitation in Version 6.06, you can manually add in the same PostScript statements that are produced by the PSSCALE.EXE program discussed above and can obtain plots designed for an 8 1/2-by-11 inch page that are up to 34-by-44 inches.

Following is an example of the PostScript statements that you need to enter at the beginning of the PostScript file:

```
%!PS-Adobe-3.0
% UserSpec (UserName: badgenumber)
% UserFileName (UserFileName: filename)
% ScalFact (Scaling: scalingpercent)
%%EOF

user's PostScript file
```

where "badgenumber" is your badge number, "filename" is the name of the PostScript file, and "scalingpercent" is a percent value from 0 to 999. For an 8 1/2-by-11 inch original, 200 will produce a 17-by-22 inch plot, and 400 will produce a 34-by-44 inch plot. The other text in these statements must be entered as shown. Spacing is important; blanks must appear in the locations shown. These statements are valid only for PostScript files sent to the ANL CalComp and Matrix printer queues.

## MANAGEMENT INFORMATION SYSTEMS

### ARGONNE REQUISITION TRACKING SYSTEM

In July 1992, the Laboratory will introduce the Argonne Requisition Tracking System (ARTS), a new Customer Information Control System (CICS) application. The first phase of ARTS will allow any CICS user to inquire by requisition, purchase order, division, and cost center. Purchase order number, purchase order line number, delivery date, quantity ordered, quantity received, and a short description of the product are a few of the items that will be available for reviewing. In July 1992, this inquiry phase will be available to a pilot group.

The second phase of ARTS will allow authorized users to enter requisitions to be processed as purchase orders. These requisitions will be sent to the Automated Materials Payables System (AMPS) for processing into a purchase order. Within 24 hours of the creation of a purchase order, AMPS will send the purchase order data to ARTS for inquiry.

### INTEGRATED FINANCIAL SYSTEM UPDATE

The Integrated Financial System (IFS) Project Team has developed a new sample package of the reports that are available through the Information Organizer (IO) system. This package contains a one-page sample of each of the 118 IFS user reports and an updated list of the valid report selection criteria for each report.

The IFS Project Team last distributed the report sample package in January 1991; therefore, we encourage users to print the new sample package to update their IFS/IO documentation. You can print a copy of these samples by running report RPTSAMPL from the IO system (no report selection criteria are necessary). Request the sample package as an ad hoc report submission (use record number between 80-99 when adding this request). The sample package is not automatically submitted at month-end with the other IFS/IO reports.

The Project Team will update this package with new reports and report documentation periodically. We will announce significant updates to the report sample package at the monthly Financial Applica-

tions Committee to Effect Telesis (FACET) meetings and in future *Newsletter* articles.

The June 1992 *Newsletter* article incorrectly stated that we will submit the October 1992 IFS/IO reports on November 5, 1992. We will submit these reports sometime during the second week of November 1992, because of the fiscal year-end process.

Progress on all phases of the IFS project will be reported at the FACET meetings held on the third working Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## PERSONAL COMPUTING

### LAN CONNECTIVITY AND INTEROPERABILITY

Local area networks (LANs) are becoming a predominant aspect of scientific and administrative computing at ANL. Compatibility among different LAN products (for example, the Digital Equipment Corporation (DEC) Pathworks, Microsoft LAN Manager, Novell NetWare, AppleTalk, and Unix) is a significant issue. Several different LAN products co-exist on the Laboratory-wide Ethernet. Currently, few are able to interoperate (that is, access resources from different LANs).

It is possible for some LAN clients (that is, user personal computers) to access servers (that is, file servers and printer servers) for more than one network server product. An additional optional access feature usually must be purchased. Although these client products can increase connectivity options for users, they do not necessarily provide that capability in a transparent or "seamless" fashion.

Table 1 indicates the availability of features that increase interoperability among different LAN products and systems. The products tested included (1) Microsoft LAN Manager 2.1, (2) Microsoft Transmission Control Protocol/Internet Protocol (TCP/IP) utilities for LAN Manager, (3) DEC Pathworks 4.0 with TCP/IP, (4) Novell NetWare 3.11, (5) Novell LAN Workplace for DOS, and (6) the public domain tn3270 terminal emulation program and lpr print program distributed by CTD.



We expect that TCP/IP-based products will enable a more manageable network environment and eventually will lead to high levels of interoperability among different LAN products. CTD and Electronics are testing several LAN products that use TCP/IP. (See "Laboratory-Wide TCP/IP with Microsoft LAN Manager 2.1" and "Tunneling Novell NetWare Over the Laboratory-Wide Network" in this *Newsletter*.)

CTD is also testing capabilities for LAN Manager clients to access Pathworks resources using TCP/IP. An example of interoperability that uses the Xerox Network System (XNS) instead of TCP/IP is the access of LAN Manager clients to both LAN Manager servers and 3Com servers running LAN Manager or 3+Open networks.

Table 1: PC LAN Client Products and Interoperability with TCP/IP

| Capability                           | Microsoft<br>LAN Manager 2.1 TCP/IP Utilities | Pathworks<br>with TCP/IP | Novell<br>NetWare LAN Workplace for DOS | tn3270/lpr    |
|--------------------------------------|-----------------------------------------------|--------------------------|-----------------------------------------|---------------|
| Telnet terminal access               | No Yes                                        | Yes                      | No Yes                                  | Yes           |
| ftp file transfer                    | No Yes                                        | Yes                      | No Yes                                  | Yes           |
| tn3270 emulation for IBM CICS, etc.  | No No                                         | No                       | No No                                   | Yes           |
| access to Pathworks printers/files   | Yes No                                        | Yes                      | No No                                   | printers only |
| access to LAN Manager files/printers | Yes Yes                                       | Yes                      | No No                                   | No            |
| access to Unix NFS files/printers    | No No                                         | Yes                      | No No                                   | printers only |
| access to NetWare files/printers     | Yes No                                        | No                       | Yes No                                  | No            |
| co-exists with lpr package           | No No                                         | No                       | No No                                   | Yes           |

#### LABORATORY-WIDE TCP/IP WITH MICROSOFT LAN MANAGER 2.1

CTD and Electronics have been testing LAN Manager 2.1 with the Transmission Control Protocol/Internet Protocol (TCP/IP) over the Laboratory-wide network. TCP/IP is the transport protocol for Internet and is available on the Laboratory-wide network. LAN Manager 2.1 can use either the Xerox Network System (XNS) or the TCP/IP protocol to route data on the Laboratory-wide network.

The test consisted of two LAN Manager 2.1 servers, one in CTD and one in Electronics. The CTD PC server was a 486/33 megahertz USA Flex with 8 megabytes of memory, a 200 megabyte hard drive, and a 3C507 Ethernet card. The Electronics PC server was an Electronics-built 386/40 megahertz, 200 megabyte, small computer systems interface (SCSI) with 8 megabytes of random-access memory (RAM).

CTD and Electronics each configured a LAN Manager 2.1 TCP/IP client with one network card, each running the LAN Manager client software included with LAN Manager 2.1. After the assignment of IP addresses, each client can access both the

local and remote LAN Manager 2.1 servers. The level of response over the network was slightly slower for the remote server access. The LAN Manager TCP/IP program uses 51K of memory when loaded, so memory-saving considerations with Disk Operating System (DOS) 5 are recommended. The 3Com XNS protocol stack is available as an add-on product from Microsoft and is necessary to allow LAN Manager clients to access 3Com 3Share servers. When compatibility with 3Share servers is not a consideration, CTD recommends TCP/IP instead of XNS, because it configures easily with onsite routers and needs less memory than the XNS program.

Microsoft offers an add-on product--TCP/IP Utilities for LAN Manager--that allows PC users to communicate with remote hosts over the TCP/IP network. These utilities include an MS Windows-based file transfer protocol (FTP) and terminal emulation package. At this time, no products for LAN Manager have full screen tn3270 emulation.

For further information about LAN Manager TCP/IP, contact John Jasunas (Computing and Telecommunications) at electronic mail address [jasunas@anl.gov](mailto:jasunas@anl.gov) or at extension 2-7346 or Chuck Beck (Electronics) at extension 2-5223.



### **TUNNELING NOVELL NETWARE OVER THE LABORATORY-WIDE NETWORK**

CTD and Electronics have collaborated on an experiment to "tunnel" Novell IPX packets across the Laboratory-wide network. IPX is the proprietary transport protocol for Novell NetWare personal computer (PC) networks. Currently, the Computing Policy Committee (CPC) Networking Subcommittee policy prohibits the use of the proprietary IPX protocol on the Laboratory-wide network. However, IP tunneling can serve as the means to connect Novell networks across the Laboratory. IP tunneling is a process of encapsulating an IPX packet within a standard Transmission Control Protocol/Internet Protocol (TCP/IP) packet. In this manner, the IPX packets can use the Laboratory-wide network as a transport medium to other Novell clients or servers onsite.

The test consisted of Novell NetWare V3.11 servers and PCs attached directly to the Laboratory-wide network in Electronics and behind a router in CTD. The Novell servers were configured to use IP tunneling. Both organizations configured a Novell NetWare V3.11 client running the local area network (LAN) Workplace for the Disk Operating System (DOS), a Novell TCP/IP add-on utility. With this utility and proper assignment of IP addresses, the Novell client was able to use the Laboratory-wide network to log into the other division's Novell server. Response over the network was at an acceptable level most of the time. The combination of NetWare, NetWare utilities, and TCP/IP features requires the use of memory-saving tools (such as DOS 5 or a third-party memory manager).

CTD's Computer Data Communications Group monitored the test of network traffic with the use of a Network General LAN Sniffer. The Sniffer revealed that the routing of IPX limited packet size to 576 bytes, and each packet was acknowledged with a 58-byte packet. This type of traffic could slow response when downloading large applications (that is, word processors and database programs). Care should be taken with the amount of data to be transferred. Because of the existing packet structure, performance could dip below acceptable standards, especially with the transfer of large executables over the Laboratory-wide network during times of peak activity. We hope that a future release of Novell NetWare includes solutions such as a larger packet size and a burst mode to reduce the need for acknowledgment after each packet.

The CPC Networking Subcommittee has endorsed CTD's recommendation to establish the following guidelines for the implementation of IPX:

1. Clients should not download large executables across the Laboratory-wide networks. Download just data files from the host and load them into application programs installed on the local client.
2. Clients should have a peer statement for target servers.
3. Novell LANs must use a router to connect to the Laboratory-wide network to keep IPX traffic local.

Also included in the testing was Novell's LAN Workplace for the DOS file transfer protocol (FTP) utility over the Laboratory-wide network. Files were transferred to and from ANLVM and the PC client. Traces revealed true FTP protocols were used. The PC client initiated file transfers between ANLVM and a Novell server. For the file transfers, the PC client used IP tunneling of IPX for the Novell server and the FTP protocol for ANLVM. Therefore, a file transfer from ANLVM to a Novell server would pass through the Novell PC client. This double transfer is transparent to the user but will create redundant traffic on the LAN.

For further information, contact Jim Regula (Computing and Telecommunications) at electronic mail address [regula@anl.gov](mailto:regula@anl.gov) or at extension 2-7622 or Earl Welch (Electronics) at electronic mail address [welch@anl.el.anl.gov](mailto:welch@anl.el.anl.gov) or at extension 2-5998.

### **PATHWORKS PC ACCESS TO CENTRAL PRINTERS IMPROVED**

Users with IBM Personal Computers (PCs) or compatibles and Pathworks software have been unable to use the new central print services on the Matrix camera (queue ANLSLIDE) and the CalComp wide format color electrostatic plotter (queues ANLCC and ANLCCBW) unless they have a central VAX cluster account. Without an account, the identification of the print job and the output is difficult and poses problems for the Computer Operations staff and the user. We have implemented procedures that help us to identify the job and the user.

Thus, you can now use the services without an account.

To use the services and to provide the necessary information items, you can use Pathworks commands to attach to the print queue (the **USE** command) and to set the requisite print options by using the **NET PRINT /SET** command. However, to make this process easier and less error-prone, we have developed a Disk Operating System (DOS) BAT procedure for you. The BAT file configures your network printer(s) with the options needed both to use the printer for PostScript or text or both and to include your personal data for identification and output distribution. You can use the BAT file to configure all Pathworks print services, not just the devices described above. The BAT file, once set up, can be executed automatically from your AUTOEXEC.BAT file when you start your PC.

The BAT file is stored on a DOS file system on the Argonne central VAX cluster (see "Public DOS File System Available" in the March 1992 *Newsletter*), where you can easily obtain a copy. The following command will give you access to the DOS file system:

```
C:\ USE ? : \\ANLCV1\DOS-PUBLIC%
```

Copy the procedure \ANLWORKS\PWPRINT.BAT to the directory on your personal computer where you keep miscellaneous BAT files. Then edit the file and supply the values of your badge number (five digits), your division code (three characters), and the node name of your Pathworks PC. Comments in the BAT file will help you find the necessary items to edit.

Then, to configure a printer, you execute **PWPRINT**, supplying up to four items on the DOS command line as follows:

```
C:\ PWPRINT LPTn ANLCV1 queue [form]
```

where "n" (n=1, 2, or 3) is the number of the logical printer (for example, LPT1) and "queue" is the name of the VAX cluster queue. You can specify a different server name than ANLCV1 if you want to use **PWPRINT** for print queues on other Pathworks print servers. You can also specify the form value, if necessary. If you omit the form, the print type defaults to PostScript. If you supply one of the optional form values, LTR\_12, LTR\_10, LPT\_PLAIN, or LPT\_GRAY, the print type will be set to text. Note

that with PostScript printers controlled by the Alisa software, you can print either ASCII text or PostScript. If you need this capability, you may wish to configure the same printer as two logical printers (for example, both LPT1 for PostScript and LPT2 for ASCII text). The LTR forms are portrait orientations (8 1/2 by 11); the LPT forms are landscape orientations (11 by 8 1/2). Note that all parameters for **PWPRINT** should be in uppercase text only.

Once you have determined what printers you need to configure, you can place the **PWPRINT** command in your AUTOEXEC.BAT file. If you use Microsoft Windows, you should execute the **PWPRINT** command(s) before starting Windows. Be sure that **PWPRINT** is in a directory or subdirectory that is in your DOS path.

The following example consists of three lines that if added to an AUTOEXEC.BAT file will configure all the print services described above:

```
CALL PWPRINT LPT1 ANLCV1 ANLSLIDE
CALL PWPRINT LPT2 ANLCV1 ANLCC
CALL PWPRINT LPT3 ANLCV1 ANLCCBW
```

Note that these devices accept only PostScript. You can also send PostScript output to the queue ANLCLRP1 for color 8 1/2-by-11 paper and to queue ANLCLRT1 for color 8 1/2-by-11 transparencies. The latter queues direct output to a color Seiko printer.

If you need further help obtaining or using **PWPRINT.BAT**, contact Rich Raffennetti at electronic mail address rraffenetti@anl.gov or at extension 2-8497. For help with DOS print commands, see the *Pathworks for DOS User's Handbook, Version 4.0* (AA-PAF7B-TK), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

After configuring your printer, you use the Pathworks **NET PRINT** command at the DOS prompt to print your file to the LPT device. For example:

```
C:\ NET PRINT DOC.PS LPT1:
```

From MS-Windows, you configure the LPT device by using the appropriate driver. Then you print from your application by using the Windows print menu item or button, as appropriate, for each application.



### **CREATING MATHEMATICAL EQUATIONS WITH THE EQUATION EDITOR IN WORD 5.0**

Apple Macintosh users can create mathematical equations in Microsoft Word 5.0 with the built-in Equation Editor, which is an application designed to create accurately sized, spaced, and positioned equations for insertion into your technical document. An Equation Editor window can be opened from within a Word 5.0 file or the application can be opened independently. Word for Windows 2.0 has a similar Equation Editor for the IBM Personal Computer.

The Equation Editor screen differs from most other Apple Macintosh application screens in that it has several pull-down palettes arranged into two rows at the top of the screen. The upper row of palettes contains more than 150 mathematical symbols, and the lower row contains about 120 templates. Selecting a template creates a foundation with one or more empty slots and an L-shaped insertion bar (see the box on the far right in Figure 1). Using the tab key, you can move the insertion bar to the desired slot and fill it by selecting either a mathematical symbol or another template from the appropriate palette.

For example, to create an equation like the one shown in Figure 2:

1. Select the integral template with subscript and superscript positions.
2. Type "1" for the subscript and select the infinity symbol for the superscript.
3. Select the fraction template and type "sin" and the appropriate space from the spaces/ellipses palette and type "y" for the numerator.
4. Type "y" for the denominator.
5. Type "dy."

The Equation Editor italicizes variables but also recognizes standard mathematical notations and displays them in plain Roman (notice how "sin" is not italicized in Figure 2).

The automatic formatting feature of the Equation Editor not only saves time but guarantees consistency throughout your document. Figure 3 illustrates the Equation Editor's ability to create complex,

effective equations for use in any technical document.

## **SCIENTIFIC WORKSTATIONS**

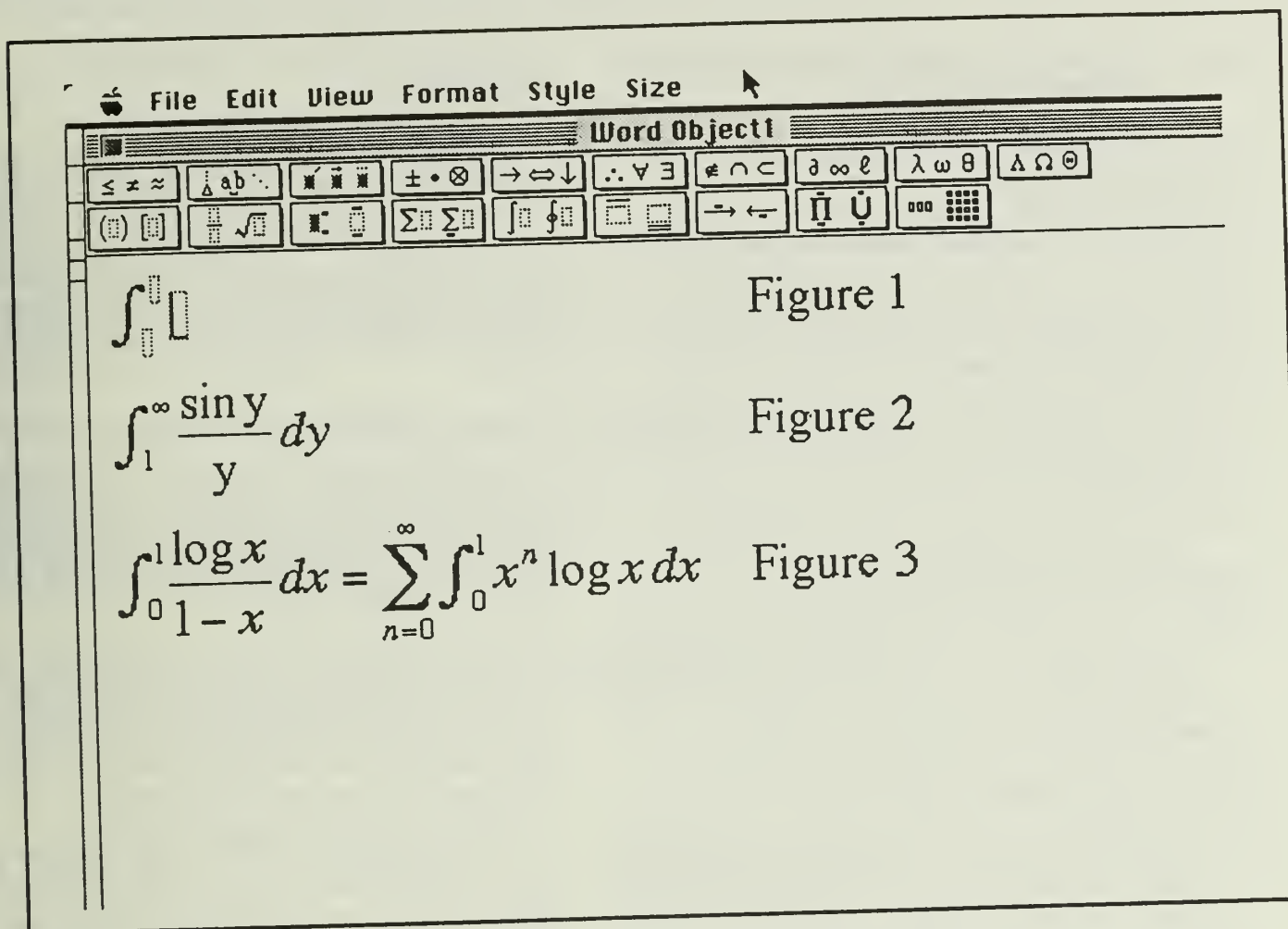
### **EXPERIENCES WITH DQS QUEUING SYSTEM**

There is a growing number of Transmission Control Protocol/Internet Protocol (TCP/IP) networks throughout the Laboratory and increased performance of the individual workstations on the networks. Therefore, finding techniques to use the growing supply of available workstation CPU cycles has become worthwhile. CTD has obtained the Distributed Queuing System (DQS), a software package from the Supercomputer Computational Research Institute at Florida State University, for evaluation.

DQS provides an environment for submitting batch jobs across networks to Unix workstations. A job submitted to DQS will be sent to the least busy workstation on the network. CTD has set up queues on several of the User Services workstations and is using large production codes to test the impact they will have on interactive sessions on the individual workstations.

During the testing and evaluation of DQS, CTD plans to develop documentation for both the end users and the system administrators. After completion of the evaluation, CTD plans to assist divisions in setting up DQS on their servers. Although DQS and the Network Queuing System (NQS) provide similar functions, the syntax of the commands in a job submitted to DQS instead of to NQS is different and requires some modifications. For more information, contact Larry Rudsinski at extension 2-7219.





## VAX/VMS NEWS

### SAS 6.07 AVAILABLE FOR TEST ON THE CENTRAL VAX CLUSTER

CTD has installed a new version of the Statistical Analysis System (SAS), 6.07, for testing central VAX cluster node ANLCV1. This maintenance version provides an increase in performance of approximately 30 percent. In addition, SAS 6.07 offers the following enhancements:

- SAS/Graph

- Ability to modify SAS/Graph graphics output from SAS/Graph with the Graphics Editor
- Ability to change elements of your graph (such as text, lines, and objects that are already displayed)
- Ability to add graphics elements to your graph

- Windowing Environment

- Function key modifications
- Display Manager session window resizing with the X statement
- Writing full-screen device drivers with a new procedure, FSDEVICE

- DECwindows Interface

- New DECterm window enhancements created by your SAS session, which enables you to invoke the TPU or LSEDIT editors from a remote session
- SAS control window replacement with the PMENU facility
- Window behavior like DECwindows window manager
- Function key input from the command line

—SAS system invocation from the session manager application menu

- Seiko ColorPoint PS PostScript printer, Model 4, driver (CH5504)
- FILENAME statement access to graphics stream files
- Default file format for SAS print files changed to Fortran carriage control
- SAS system able to create and read Compound Document Architecture (CDA) documents from SAS/Graph

For additional information about SAS 6.07, see `SY$HELP:SAS607.release_notes`.

If no problems are found with the new version, CTD will make SAS 6.07 the production SAS system on Monday, July 13, 1992. To use SAS 6.07 before July 13, 1992, enter the command:

```
CV1 $ SETUP SAS /V=NEW
```

SAS 6.06 will remain on the system until August 3, 1992, when CTD will permanently remove it from the central VAX cluster. To use SAS 6.06 after July 13, 1992, enter:

```
CV1 $ SETUP SAS /V=OLD
```

Users encountering problems with SAS 6.07 should contact the User Services consultants at electronic mail address `anlev1::consult` or at extension 2-5405.

## BITS & BYTES

### **TTC ESTABLISHES DATABASE OF ANL SOFTWARE WITH POSSIBLE COMMERCIAL INTEREST**

The Technology Transfer Center (TTC) is building a database of software packages developed at ANL that might be of commercial interest. To list software in this database, contact Ray Gumb at electronic mail address `ttc-software-database@anl.gov` or at extension 2-9118.

### **RECENTLY UPDATED AND PUBLISHED DOCUMENTS**

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### **Computing and Telecommunications Documents**

*Network Access to CICS: Apple Macintosh* describes how you can access the Customer Information Control System (CICS) with your Apple Macintosh computer. This brochure supersedes the February 1989 brochure.

*Network Access to CICS: Full Screen Terminal or ASCII Terminal* describes how you can access the Customer Information Control System (CICS) with your full-screen or ASCII terminal. This brochure supersedes the February 1989 brochure.

*Network Access to CICS: IBM Personal Computer* describes how you can access the Customer Information Control System (CICS) with your IBM Personal Computer. This brochure supersedes the December 1988 brochure.

*Recommended Documentation for Computer Users at ANL* (ANL/TM 379, Revision 3) helps Argonne computer users select documentation that will best fit their individual needs. We have revised this document extensively to reflect recent upgrades and other changes in services. Chapter 1 explains how to use this document to select documents and how to obtain them from the CTD Document Distribution Counter. Chapter 2 contains a table that categorizes available publications. Chapter 3 gives descriptions of the online **DOCUMENT** command for CMS, the VAX, and the Sun workstation. Chapter 4 lists publications by subject. Chapter 5 contains abstracts for each publication, all arranged alphabetically. Chapter 6 describes additional publications containing bibliographies and master indexes that the user may find useful. The appendix identifies available computer systems, applications, languages, and libraries. This document supersedes *Recommended Documentation for Computer Users at ANL* (ANL/TM 379, Revision 2).



## Kermit Documents

The *C-Kermit User Guide for Unix, VMS, and Many Other Operating Systems, Version 4E(072)* describes the Unix file system, C-Kermit, and how to install C-Kermit on various systems.

The *IBM System/370 Kermit User's Guide, Version 4.2* describes IBM 370 Kermit, IBM CMS Kermit, IBM MVS/TSO Kermit, IBM CICS Kermit, and IBM MUSIC/SP Kermit.

The *Macintosh Kermit User Guide for the Apple Macintosh 512, Plus, II, and SE, Version .9(040)* describes the Macintosh file system. This document assumes you are acquainted with your Macintosh and are familiar with the general ideas of data communication and Kermit file transfer.

The *VAX/VMS Kermit-32 User Guide, Version 3.3.126* describes the VAX/VMS file system, Kermit-32, and how to install Kermit-32.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD JUNE 2, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

**Status of Cray Shutdown Issues.** Larry Amiot (Computing and Telecommunications) reported on the status of user concerns and needs if the Laboratory shuts down the Cray computer system. The Computing Policy Committee requested that CTD develop a plan for shutting down the Cray, because its costs were under-recovered and the system under-used (primarily because of the move to distributed computing by many divisions). Under the CTD plan, ANL management would notify users in June 1992 of any impending shutdown of the Cray, would notify Cray in August 1992, and would shut down the Cray on October 1, 1992. Even with a shutdown in October 1992, the Laboratory will have to pay approximately \$7,500 per month until May 1995 or \$205,000 on October 1, 1992, to buy out of the Cray memory lease. Equipment would be placed on the excess list and removal would cost about \$6,000. Of

all the hardware, the disk units are the most valuable.

One of the main user concerns is the many binary Cray files written to tape and the need to be able to recover them without the Cray as the interface. The Cray contains utilities that allow the user to format data in various computer formats. CTD is working with users to try to develop an alternative that does not involve the Cray. Most Cray usage should be shifted to divisional distributed systems. CTD plans to acquire two IBM RS6000/350s and will investigate the availability of time on other Cray X-MPs. Another user need is the Network File System (NFS) access the Cray provided. CTD is looking at other NFS servers. One of the Cray advantages is good security validation for user access. To date, other NFS systems do not seem to be as good in computer security capabilities. CTD is studying the migration and archiving functions with an NFS server.

Also, CTD is studying file transfer mechanism to the IBM disks, NFS for VM or MVS, job submission from Wylbur to Laboratory Unix systems, and ways to send Unix files to the CTD print queues. Fortran carriage control and long line lengths can still be a problem.

**Schedule for Conversion to MVS/XA on IBM 3084.** Jerry Davison (Computing and Telecommunications) reported on the status of the conversion to MVS/XA on the IBM 3084 system. The Laboratory ordered the product and custom installation kits in the summer and fall of 1991. The disk failures in January 1992 caused a delay in the removal of obsolete region management coding until February 1992, which delayed the upgrade to Resource Access Control Facility (RACF) 1.9, a prerequisite for Customer Information Control System (CICS) maintenance.

To move forward, other major components need to be upgraded or installed. The Virtual Telecommunications Access Method (VTAM) and Time Sharing Option Extensions (TSO/E) need to be installed, as well as the current JES3. The Tape Management System (TMS) 5.0 also needs to be in place before production usage can take place.

In July 1992, there will be internal MVS/XA testing. In August 1992, there should be a test system capable of running jobs, CICS, TSO, and Wylbur; but there will be no tape access. In October



1992, the tape system is to be installed with a cut-over to MVS/XA in the December 1992/January 1993 time frame.

**Proposal to Add Inactivity Time-out to High-Speed Modem Pool.** Bob McMahon (Computing and Telecommunications) reported on the status of the modem pools and how usage has shifted. The 1200/2400 service has dropped from about 3,000 attempts per week to about 1,200, while 19.2K usage has increased from about 300 to close to 1,000 per week. There are about 30 1200/2400 modems and 12 19.2K modems. To handle the increased load and to reduce the number of failed attempts to get a high-speed modem because they are all in use, CTD is increasing the number from 12 to 18. Of the approximately 220 calls per day, about 20 receive a busy signal. The average length of a call is 70 minutes, but there is a very large spread in the lengths. CTD proposed to monitor the modem pool, to determine the impact of an inactivity time-out of about 30 minutes, to present the results, and to write a *Newsletter* article about the time-out.

Users expressed concern about initiating any inactivity time-out system, wondering if this is the best way to proceed. There is already a problem with the CTD terminal server disconnecting people because of keyboard inactivity, even if there is constant activity in a window. The modem would not disconnect in this situation, since there would be transmission through the modem. The users still questioned the cost-effectiveness of disconnecting users who might be monitoring useful work, especially considering the reduction in price of the high-speed modems. It was generally felt that adding more modems was the better solution.

**Distributed System Administration Services Offered by CTD.** Fred Moszur (Computing and Telecommunications) reported on new CTD services for divisional distributed systems to reduce the need by divisions to hire their own system administrators. The services to be provided are negotiated between CTD and the division and then paid for on a service contract or a fixed monthly fee. The type of services available are system software installation and maintenance, application software installation and maintenance, expertise when system problems occur, user consulting, classes, local documentation, and review of computer protection procedures and plans. CTD has expertise in Unix workstations, personal computer local area networking, and the VAX system.

The Computer Users Group normally meets on the first Tuesday of each month at 3:00 p.m. in Building 221, Room A-216. Contact Pat Garner (extension 2-4872) or Ken Miles (extension 2-3095) to be placed on the distribution list for meeting announcements or for additional information.

The CUG meeting adjourned at 4:09 p.m.

Ken Miles, CUG Secretary

# WORKLOAD STATISTICS (APRIL 30 THROUGH MAY 28, 1992)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,206              | 1,210        | 409                 |
| Wylbur      | 1,540              | 1,543        | 273                 |
| MVS TSO     | 57                 | 57           | 21                  |
| CICS        | 2,286              | 2,299        | 231                 |
| MVS Batch   | 2,286              | 2,299        | 581                 |
| VAX/VMS     | 834                | 844          | 171                 |
| Cray        | 352                | 360          | 90                  |
| Unix        | 135                | 146          | *                   |
| All Systems | 2,286              | 2,299        | 902                 |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |       |         |        | SESSION TIME (HRS) | CPU TIME (HRS) |
|--------------------|--------------------------------|-------|---------|--------|--------------------|----------------|
|                    | PRIME                          | NIGHT | WEEKEND | TOTAL  |                    |                |
| <b>INTERACTIVE</b> |                                |       |         |        |                    |                |
| CMS                | 9,448                          | 2,622 | 2,151   | 14,221 | 40,969             | 82.52          |
| Wylbur             | 4,467                          | 159   | 128     | 4,754  | 5,025              | 3.32           |
| MVS TSO            | 568                            | 14    | 4       | 586    | 532                | 2.04           |
| CICS               | *                              | *     | *       | *      | *                  | *              |
| VAX/VMS            | 7,914                          | 4,682 | 3,104   | 15,700 | 31,235             | 98.85          |
| Cray               | 351                            | 16    | 5       | 372    | 534                | 72.56          |
| <b>IBM BATCH</b>   |                                |       |         |        |                    |                |
| Class U            | 7,137                          | 1,758 | 951     | 9,846  | **                 | 18.31          |
| Class W            | 12,955                         | 3,522 | 483     | 16,960 | **                 | 94.55          |
| Class X            | 6                              | 643   | 1       | 650    | **                 | 29.13          |
| Class Y            | 0                              | 0     | 158     | 158    | **                 | 10.06          |
| Nonmain            | 14,857                         | 2,321 | 1,466   | 18,644 | **                 | 0.00           |
| Total              | 34,955                         | 8,244 | 3,059   | 46,258 | **                 | 152.05         |
| <b>CRAY BATCH</b>  |                                |       |         |        |                    |                |
| u                  | 351                            | 16    | 37      | 404    | **                 | 0.70           |
| w                  | 529                            | 30    | 5       | 564    | **                 | 0.67           |
| x                  | 534                            | 19    | 40      | 593    | **                 | 4.95           |
| y                  | 1,841                          | 76    | 179     | 2,096  | **                 | 43.30          |
| Total              | 3,255                          | 141   | 261     | 3,657  | **                 | 49.68          |
| <b>VMS BATCH</b>   |                                |       |         |        |                    |                |
| W_BATCH            | 42                             | 233   | 98      | 373    | **                 | 10.05          |
| X_BATCH            | 2                              | 2     | 0       | 4      | **                 | 9.43           |
| Y_BATCH            | 0                              | 0     | 0       | 0      | **                 | 0.00           |
| Total              | 44                             | 235   | 98      | 377    | **                 | 19.48          |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               | 46,592,890 |
| Local                       | 40,724,440 |
| Remote                      | 37,495,220 |
| Fiche                       | 5,936      |
| Tape Mounts                 | 4,914      |
| Microfiche Developed        | 821,760    |
| Microfiche Frames Developed |            |

## GRAPHICS

|                         | # OF JOBS | # OF FRAMES |
|-------------------------|-----------|-------------|
| CalComp Jobs            | 36        | *           |
| Matrix 35mm Color       | 27        | 54          |
| Seiko (Paper)***        | 1,276     | 2,752       |
| Seiko (Transparency)*** | 130       | 282         |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 23,806 |
| Round Tapes Saved           | 69     |
| Round Tapes Released        | 615    |
| Cartridges Saved            | 1,272  |
| Cartridges Released         | 1,300  |
| Datasets Exported to Tape   | 0      |
| Datasets Imported from Tape | 353    |

\* not available

\*\* not applicable

\*\*\* Seiko accounting records date from 2/3/92

# AVAILABILITY STATISTICS, BY MACHINE (APRIL 30 THROUGH MAY 28, 1992)

|                                    | Monthly<br>Totals | Hardware | Scheduled<br>Software | Other | Hardware | Unscheduled<br>Software | Other |
|------------------------------------|-------------------|----------|-----------------------|-------|----------|-------------------------|-------|
| CMS                                |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| WYLBUR                             |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 6.00              | 0.00     | 3.00                  | 0.00  | 3.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 18.50             | 0.00     | 2.83                  | 0.00  | 15.66    | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 225.83            |          |                       |       | 225.83   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 2.00              | 0.00     | 0.00                  | 0.00  | 2.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 4.01              | 0.00     | 0.00                  | 0.00  | 4.01     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 123.99            |          |                       |       | 123.99   |                         |       |
| MVS TSO                            |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 6.00              | 0.00     | 3.00                  | 0.00  | 3.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 18.50             | 0.00     | 2.83                  | 0.00  | 15.66    | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 225.83            |          |                       |       | 225.83   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 2.00              | 0.00     | 0.00                  | 0.00  | 2.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 4.01              | 0.00     | 0.00                  | 0.00  | 4.01     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 123.99            |          |                       |       | 123.99   |                         |       |
| JES3                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 3.00              | 0.00     | 3.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 2.61              | 0.00     | 2.61                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| CICS                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| VAX/VMS (VAX 8700)                 |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 4.00              | 2.00     | 2.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 11.45             | 2.53     | 8.91                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| VAX/VMS (VAX 6410)                 |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 7.00              | 2.00     | 3.00                  | 0.00  | 0.00     | 2.00                    | 0.00  |
| Hrs Unavailable                    | 12.33             | 2.43     | 8.93                  | 0.00  | 0.00     | 0.96                    | 0.00  |
| MTF/Unscheduled                    | 341.83            |          |                       |       |          | 341.83                  |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 1.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 1.00                    | 0.00  |
| Hrs Unavailable                    | 0.70              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.70                    | 0.00  |
| MTF/Unscheduled                    | 251.30            |          |                       |       |          | 251.30                  |       |
| CRAY                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 7.00              | 3.00     | 1.00                  | 0.00  | 3.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 12.65             | 9.28     | 0.08                  | 0.00  | 3.28     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 227.78            |          |                       |       | 227.78   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 2.00              | 0.00     | 0.00                  | 0.00  | 2.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 2.80              | 0.00     | 0.00                  | 0.00  | 2.80     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 124.60            |          |                       |       | 124.60   |                         |       |



COMPUTING CENTER USE IN DOLLARS BY COST CENTER (APRIL 30 THROUGH MAY 28, 1992)

| CC                                             | CENAME                            | IBM      | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|------------------------------------------------|-----------------------------------|----------|----------|----------|----------|------------|-----------|
| ADVANCED PHOTON SOURCE                         |                                   |          |          |          |          |            |           |
| 131                                            | ACCELERATOR SYS DIV               | \$99     | \$2      | \$0      | \$38     | \$234      | \$373     |
| 132                                            | EXP FACIL DIV                     | \$58     | \$0      | \$0      | \$0      | \$115      | \$173     |
| 272                                            | ADVANCED PHOTON SOURCE            | \$75     | \$0      | \$0      | \$31     | \$29       | \$135     |
| 341                                            | APS ACCELERATOR PHYSICS           | \$407    | \$1,969  | \$0      | \$15     | \$71       | \$2,462   |
| 342                                            | APS DIAGNOSTICS                   | \$3      | \$19     | \$0      | \$1      | \$128      | \$152     |
| 343                                            | APS LINAC                         | \$0      | \$98     | \$0      | \$0      | \$0        | \$98      |
| 344                                            | APS RF                            | \$3      | \$27     | \$0      | \$0      | \$10       | \$60      |
| 345                                            | APS VACUUM/MECHANICAL ENG.        | \$9      | \$2,155  | \$239    | \$126    | \$427      | \$2,956   |
| 347                                            | APS CONTROLS                      | \$56     | \$137    | \$0      | \$74     | \$81       | \$348     |
| 348                                            | APS MAGNETS                       | \$36     | \$0      | \$0      | \$3      | \$0        | \$38      |
| 349                                            | APS POWER SUPPLIES                | \$0      | \$10     | \$0      | \$0      | \$0        | \$10      |
| 350                                            | APS DIVISION MANAGEMENT           | \$32     | \$742    | \$0      | \$30     | \$222      | \$1,551   |
| 351                                            | APS INSERTION DEVICES             | \$29     | \$1,270  | \$0      | \$64     | \$6,722    | \$11,167  |
| 352                                            | APS ENGINEERED SYSTEMS            | \$20     | \$4,360  | \$0      | \$0      | \$0        | \$6       |
| 353                                            | APS BEAM LINE INSTRUMENTATION     | \$6      | \$0      | \$0      | \$315    | \$160      | \$619     |
| 360                                            | APS CONVENTIONAL FACILITIES       | \$124    | \$20     | \$0      |          |            |           |
| 361                                            | APS PROJECT DIRECTION             |          |          |          |          |            |           |
|                                                |                                   | -----    | -----    | -----    | -----    | -----      | -----     |
| SUBTOTAL                                       |                                   | \$1,009  | \$10,845 | \$240    | \$718    | \$8,220    | \$21,032  |
| ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH |                                   |          |          |          |          |            |           |
| 110                                            | BIO & MED RES DIV                 | \$526    | \$2,575  | \$1,200  | \$807    | \$1,354    | \$6,462   |
| 125                                            | TECHNOLOGY TRANSFER CENTER        | \$66     | \$9      | \$0      | \$0      | \$135      | \$209     |
| 149                                            | ENVIRONMENTAL RESEARCH DIV        | \$1,686  | \$247    | \$163    | \$872    | \$1,352    | \$4,320   |
| 155                                            | ENERGY SYSTEMS DIVISION           | \$1,830  | \$2,166  | \$321    | \$621    | \$758      | \$5,697   |
| 165                                            | ENV ASSESS & INFO SCI DIV         | \$2,828  | \$3,148  | \$282    | \$1,261  | \$3,075    | \$10,594  |
| 274                                            | ENER/ENV/BIO RES PROG ADM         | \$100    | \$0      | \$0      | \$1      | \$239      | \$340     |
|                                                |                                   | -----    | -----    | -----    | -----    | -----      | -----     |
| SUBTOTAL                                       |                                   | \$7,036  | \$8,144  | \$1,967  | \$3,561  | \$6,913    | \$27,622  |
| ENGINEERING RESEARCH                           |                                   |          |          |          |          |            |           |
| 102                                            | EBR-II PROJECT-ANL WEST           | \$1,362  | \$15     | \$167    | \$2,183  | \$356      | \$4,083   |
| 104                                            | FUELS AND PROCESSES DIVISION      | \$1,191  | \$127    | \$15     | \$401    | \$132      | \$1,866   |
| 107                                            | CHEMICAL TECHNOLOGY DIVISION      | \$438    | \$171    | \$2,279  | \$520    | \$415      | \$3,823   |
| 112                                            | REACTOR ENGINEERING DIVISION      | \$1,802  | \$908    | \$1,339  | \$762    | \$1,177    | \$6,327   |
| 114                                            | MATLS & COMP TECH DIV             | \$3,269  | \$4,179  | \$1,191  | \$824    | \$1,804    | \$11,267  |
| 115                                            | ENGINEERING PHYSICS DIVISION      | \$2,692  | \$1,461  | \$325    | \$1,343  | \$1,400    | \$7,221   |
| 116                                            | REACTOR ANALYSIS DIVISION         | \$32,808 | \$2,762  | \$15,103 | \$7,237  | \$10,537   | \$68,447  |
| 117                                            | ENGINEERING PHYSICS ANL-WEST      | \$2,886  | \$619    | \$2,842  | \$193    | \$317      | \$6,357   |
| 118                                            | FUEL CYCLE DIVISION               | \$762    | \$2,865  | \$4      | \$149    | \$230      | \$4,010   |
| 171                                            | ENG RES PROG DIR                  | \$6      | \$0      | \$0      | \$0      | \$106      | \$112     |
| 197                                            | SPECIAL PROJECTS OFFICE           | \$371    | \$1      | \$0      | \$7      | \$195      | \$574     |
| 211                                            | ENGR PHYS DIV - DESIGN ENGR       | \$19     | \$0      | \$0      | \$4      | \$105      | \$128     |
| 269                                            | ANALYTICAL CHEMISTRY LABORATORY   | \$119    | \$2      | \$0      | \$4      | \$108      | \$233     |
| 271                                            | ENG RES PROG ADMIN                | \$230    | \$0      | \$0      | \$30     | \$421      | \$681     |
|                                                |                                   | -----    | -----    | -----    | -----    | -----      | -----     |
| SUBTOTAL                                       |                                   | \$47,455 | \$13,111 | \$23,265 | \$13,656 | \$17,643   | \$115,129 |
| PHYSICAL RESEARCH                              |                                   |          |          |          |          |            |           |
| 105                                            | MATERIALS SCIENCE DIVISION        | \$478    | \$2,433  | \$281    | \$1,041  | \$565      | \$4,797   |
| 109                                            | PHYSICS DIV                       | \$-4,776 | \$815    | \$21     | \$812    | \$521      | \$-2,607  |
| 120                                            | CHEMISTRY DIV                     | \$683    | \$2,603  | \$2,152  | \$329    | \$819      | \$6,587   |
| 136                                            | INT PULSE NEUT SOURCE PROG        | \$-461   | \$75     | \$32     | \$273    | \$317      | \$235     |
| 137                                            | HIGH ENERGY PHYSICS DIV           | \$424    | \$1,262  | \$302    | \$537    | \$1,105    | \$3,630   |
| 139                                            | DIV OF EDUCATIONAL PROGRAMS       | \$481    | \$0      | \$0      | \$66     | \$161      | \$708     |
| 145                                            | MATHAMATICS & COMPUTER SCI DIV    | \$87     | \$46     | \$209    | \$12     | \$1,159    | \$1,513   |
| 146                                            | CTD DIV - SCI APPL & RES          | \$47     | \$213    | \$71     | \$58     | \$1,835    | \$2,224   |
| 273                                            | PHYSICAL RESEARCH PROGRAM ADMIN   | \$54     | \$10     | \$0      | \$27     | \$158      | \$249     |
|                                                |                                   | -----    | -----    | -----    | -----    | -----      | -----     |
| SUBTOTAL                                       |                                   | \$-2,982 | \$7,457  | \$3,067  | \$3,155  | \$6,638    | \$17,335  |
| EXTERNAL                                       |                                   |          |          |          |          |            |           |
| 751                                            | FERMI NATIONAL LABORATORY         | \$453    | \$0      | \$0      | \$868    | \$503      | \$1,825   |
| 752                                            | NAVY                              | \$6,235  | \$0      | \$0      | \$833    | \$3,430    | \$10,498  |
| 753                                            | MORGANTOWN ENERGY TECH CENTER     | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 754                                            | DEPARTMENT OF ENERGY AT ANL       | \$0      | \$13     | \$0      | \$36     | \$0        | \$49      |
| 760                                            | ABBOTT LABORATORIES               | \$3      | \$0      | \$47     | \$0      | \$0        | \$50      |
| 777                                            | UNIVERSITY OF CHICAGO AT ANL      | \$13     | \$0      | \$0      | \$150    | \$0        | \$163     |
| 778                                            | ARGONNE CREDIT UNION              | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 779                                            | UNIVERSITY OF ILLINOIS AT CHICAGO | \$9      | \$0      | \$0      | \$0      | \$12       | \$21      |
| 780                                            | NEW BRUNSWICK LABORATORY          | \$3      | \$33     | \$0      | \$0      | \$0        | \$36      |
| 782                                            | PACKER ENGINEERING                | \$17     | \$0      | \$0      | \$0      | \$0        | \$17      |
| 783                                            | WEST VALLEY NUCLEAR SERVICES CO   | \$0      | \$49     | \$162    | \$0      | \$0        | \$211     |
| 784                                            | SSC LABORATORY                    | \$0      | \$0      | \$0      | \$0      | \$20       | \$20      |
| 790                                            | GRUMANN AEROSPACE                 | \$0      | \$0      | \$0      | \$0      | \$-130     | \$-130    |
| 791                                            | LAWRENCE LIVERMORE                | \$0      | \$0      | \$0      | \$0      | \$0        | \$0       |
|                                                |                                   | -----    | -----    | -----    | -----    | -----      | -----     |
| SUBTOTAL                                       |                                   | \$6,750  | \$95     | \$210    | \$1,888  | \$3,836    | \$12,779  |

| CC       | CCNAME                               | IBM       | VAX        | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|----------|--------------------------------------|-----------|------------|----------|----------|------------|-----------|
|          |                                      |           | OPERATIONS |          |          |            |           |
| 143      | SUPP SERV DIV - ELEC DEPT            | \$187     | \$3        | \$0      | \$271    | \$340      | \$799     |
| 148      | HUMAN RESOURCES-MEDICAL DEPT         | \$4,117   | \$0        | \$0      | \$137    | \$581      | \$4,835   |
| 150      | SUPPORT SERV DIV - SPEC MATLS        | \$183     | \$0        | \$0      | \$21     | \$168      | \$371     |
| 161      | IPD-TECH INFO SERV                   | \$397     | \$28,474   | \$0      | \$59     | \$905      | \$29,835  |
| 201      | OFFICE OF THE DIRECTOR               | \$117     | \$0        | \$0      | \$130    | \$107      | \$355     |
| 202      | OFC OF CHIEF OPER OFCR               | \$22      | \$0        | \$0      | \$75     | \$112      | \$210     |
| 210      | SUPP SERV DIV - CENT SHOPS           | \$317     | \$0        | \$0      | \$75     | \$524      | \$916     |
| 216      | SUPPORT SERVICES DIVISION            | \$99      | \$0        | \$0      | \$6      | \$121      | \$225     |
| 222      | PLANT FAC & SERV-LODGING FAC         | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 232      | SUPPORT SERV DIV - SECURITY          | \$315     | \$0        | \$0      | \$4      | \$174      | \$493     |
| 234      | ESH DIV-HEALTH PHY                   | \$311     | \$393      | \$0      | \$567    | \$260      | \$1,531   |
| 235      | ESH DIV                              | \$1,431   | \$52       | \$0      | \$190    | \$552      | \$2,226   |
| 236      | ESH DIV-FIRE DEPT                    | \$7       | \$0        | \$0      | \$0      | \$101      | \$108     |
| 245      | COMPUTING AND TELECOM DIV            | \$21,610  | \$0        | \$0      | \$3,837  | \$2,754    | \$28,201  |
| 247      | COMP & TEL DIV - COM SERV            | \$2,285   | \$0        | \$0      | \$464    | \$1,290    | \$4,039   |
| 260      | IPD-MEDIA SERV DEPT                  | \$196     | \$1,134    | \$0      | \$19     | \$320      | \$1,669   |
| 265      | IPD-TECH COM SERV                    | \$76      | \$0        | \$0      | \$2      | \$9        | \$87      |
| 275      | OFFICE OF PUBLIC AFFAIRS             | \$526     | \$0        | \$0      | \$41     | \$140      | \$706     |
| 276      | OFC PUB AF - MOTN PIC UNIT           | \$89      | \$0        | \$0      | \$0      | \$16       | \$105     |
| 288      | INF & PUBL DIV                       | \$84      | \$12       | \$0      | \$3      | \$103      | \$202     |
| 296      | TELECOM COST/RECOVERY                | \$0       | \$0        | \$0      | \$65     | \$0        | \$65      |
| 315      | SUPP SERV DIV-MATLS & SERV           | \$3,758   | \$0        | \$0      | \$1,064  | \$772      | \$5,594   |
| 316      | PLANT FAC & SERV-VEH MAINT           | \$0       | \$0        | \$0      | \$0      | \$166      | \$166     |
| 317      | PLANT FAC & SERV-DRIV&RIG SERV       | \$33      | \$0        | \$0      | \$1      | \$100      | \$134     |
| 319      | SUPP SERV DIV-TRAVEL OFC             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 322      | SUPP SERV DIV-PROCUREMENT            | \$85      | \$1        | \$0      | \$31     | \$106      | \$223     |
| 331      | EEO-INDIRECT                         | \$5       | \$0        | \$0      | \$0      | \$0        | \$5       |
| 333      | ENVIR SAFE HEALTH & QA OVERSIGH      | \$2,544   | \$27       | \$0      | \$181    | \$735      | \$3,487   |
| 336      | SUPP SERV DIV - INSPECTION           | \$17      | \$0        | \$0      | \$0      | \$2        | \$19      |
| 400      | OFC OF CHIEF FIN OFFICER             | \$38,588  | \$0        | \$0      | \$2,603  | \$9,724    | \$50,914  |
| 401      | ACCOUNTING                           | \$6       | \$0        | \$0      | \$6      | \$0        | \$12      |
| 403      | BUDGET OFFICE                        | \$3       | \$0        | \$0      | \$0      | \$0        | \$3       |
| 410      | HUMAN RESOURCES DEPARTMENT           | \$16,524  | \$10       | \$0      | \$1,241  | \$3,492    | \$21,267  |
| 412      | AFFIRM ACTION PROGRAM                | \$63      | \$0        | \$0      | \$45     | \$101      | \$209     |
| 501      | PLANT FAC & SERV-BLDG MAINT          | \$203     | \$0        | \$0      | \$53     | \$264      | \$520     |
| 502      | PLANT FAC & SERV-INSTALLATIONS       | \$35      | \$0        | \$0      | \$4      | \$100      | \$139     |
| 503      | PLANT FAC & SERV-GROUNDS             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 504      | PLANT FAC & SERV-CUSTODIAL           | \$3       | \$0        | \$0      | \$0      | \$100      | \$103     |
| 505      | PLANT FAC & SERV-WASTE MGMT OP       | \$83      | \$0        | \$0      | \$65     | \$100      | \$249     |
| 506      | PLANT FAC & SERV-PLANT MGR OFC       | \$590     | \$0        | \$0      | \$61     | \$397      | \$1,048   |
| 510      | PLANT FAC & SERV-UTILITY SYST        | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 512      | PLANT FAC & SERV-FAC PLNG/ENG        | \$601     | \$71       | \$0      | \$12     | \$413      | \$1,098   |
| 530      | SITE MGRS OFC-ANL WEST               | \$44      | \$0        | \$0      | \$1      | \$101      | \$146     |
| 531      | HUMAN RESOURCES-AW                   | \$179     | \$0        | \$0      | \$81     | \$100      | \$360     |
| 532      | SPECIAL MATLS-ANL WEST               | \$879     | \$0        | \$0      | \$245    | \$367      | \$1,491   |
| 533      | ACCOUNTING-ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 534      | PURCHASING-ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 535      | SECURITY - ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 536      | ENVIRONMENT, SAFETY & HEALTH-AW      | \$6       | \$0        | \$0      | \$0      | \$100      | \$106     |
| 537      | INFORMATION SERVICE-ANL WEST         | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 538      | SUPPLY-AW                            | \$122     | \$0        | \$0      | \$13     | \$100      | \$236     |
| 548      | ANL WEST GENERAL EXPENSE             | \$211     | \$0        | \$0      | \$51     | \$0        | \$262     |
| 550      | COMPUTER APPL & SERV - ANL-W         | \$101     | \$0        | \$0      | \$12     | \$101      | \$213     |
| 554      | MACHINE SHOP-ANL WEST                | \$29      | \$0        | \$0      | \$5      | \$100      | \$133     |
| 556      | SITE ENGRG-ANL WEST                  | \$96      | \$0        | \$0      | \$21     | \$100      | \$216     |
| 557      | PLANT SERVICES-AW-SERVICE REQ        | \$157     | \$1        | \$0      | \$11     | \$100      | \$268     |
| 558      | PLANT SERVICES-AW-FUNCTION           | \$3       | \$0        | \$0      | \$0      | \$0        | \$3       |
| 561      | OFC OF QUALITY ASSURANCE - AW        | \$9       | \$0        | \$0      | \$0      | \$101      | \$110     |
| 570      | ENVIRON HEALTH SAFETY QUAL ASSURANCE | \$74      | \$0        | \$0      | \$0      | \$1        | \$75      |
| SUBTOTAL |                                      | \$97,420  | \$30,177   | \$0      | \$11,772 | \$27,219   | \$166,589 |
| TOTAL    |                                      | \$156,687 | \$69,829   | \$28,748 | \$34,751 | \$70,470   | \$360,485 |

## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance             | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|----------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center              | 2-5421                                | 8-708-252-5421    | 252-5421                   |
| Current System Status Recorded Message | 2-5466                                | 8-708-252-5466    | 252-5466                   |
| User Consultant                        | 2-5405                                | 8-708-252-5405    | 252-5405                   |
| Documentation                          | 2-5405                                | 8-708-252-5405    | 252-5405                   |
| Computer Operations                    | 2-5421                                | 8-708-252-5421    | 252-5421                   |
| VM/SP Operator                         | 2-8442                                | 8-708-252-8442    | 252-8442                   |
| RADS Maintenance                       | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service              | 1-800-332-1478 (only within Illinois) |                   |                            |

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

|                                                                             |         |      |           |
|-----------------------------------------------------------------------------|---------|------|-----------|
| IBM 3270 Protocol Converter                                                 | 2-3270  | n.a. | 252-3270  |
| 1200 to 19.2K Bits Per Second (Onsite)                                      |         |      | 252-3219  |
| 1200 to 2400 Bits Per Second (Offsite)                                      |         |      |           |
| 9600 to 19.2K Bits Per Second (Offsite)                                     |         |      |           |
| X.25 Terminal Multiplexor                                                   | 2-2525  | n.a. | 252-2525  |
| 300 to 19.2K Bits Per Second (Onsite)                                       |         |      | 252-2519  |
| 1200 to 2400 Bits Per Second (Offsite)                                      |         |      | n.a.      |
| 9600 to 19.2K Bits Per Second (Offsite)                                     |         |      |           |
| IBM 3174 Cluster Controller                                                 | 2-3174  | n.a. |           |
| 1,200 Bits Per Second Full-Duplex<br>(Bell 212 and Hayes Compatible Modems) | 2-2212  | n.a. | 252-2212  |
| 1,200 Bits Per Second Full-Duplex<br>(Vadic 3400 Compatible Modems)         | 2-7612  | n.a. | 252-7612  |
| 300 Bits Per Second                                                         | 2-7603* | n.a. | 252-7603* |

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

|                                                                          |        |      |          |
|--------------------------------------------------------------------------|--------|------|----------|
| 2,000 or 2,400 Bits Per Second<br>(Bell 201A and 201C Compatible Modems) | 2-7989 | n.a. | 252-7989 |
| 4,800 Bits Per Second<br>(Bell 208B Compatible Modems)                   | 2-7573 | n.a. | 252-7573 |

### Central DEC VAX Cluster

|                                         |        |      |          |
|-----------------------------------------|--------|------|----------|
| 1200 to 19.2K Bits Per Second (Onsite)  | 2-8700 | n.a. | 252-8700 |
| 1200 to 2400 Bits Per Second (Offsite)  |        |      | 252-8745 |
| 9600 to 19.2K Bits Per Second (Offsite) |        |      |          |

### Argonne TCP/IP Network

|                                         |        |      |          |
|-----------------------------------------|--------|------|----------|
| 1200 to 19.2K Bits Per Second (Onsite)  | 2-5588 | n.a. | 252-5588 |
| 1200 to 2400 Bits Per Second (Offsite)  |        |      | 252-4726 |
| 9600 to 19.2K Bits Per Second (Offsite) |        |      |          |

### Argonne ESnet Dial-Up

|                              |        |      |          |
|------------------------------|--------|------|----------|
| 300 to 19.2K Bits Per Second | 2-7920 | n.a. | 252-7920 |
|------------------------------|--------|------|----------|

## COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

**MVS JES3  
Batch, UNICOS  
Wylbur,  
and TSO**

**VM/XA**

**VMS**

|                       |                              |                              |                              |
|-----------------------|------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                  | 00:00-24:00                  | 00:00-24:00                  |

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





## SUBJECT INDEX FOR CALENDAR YEAR 1992 (7/92)

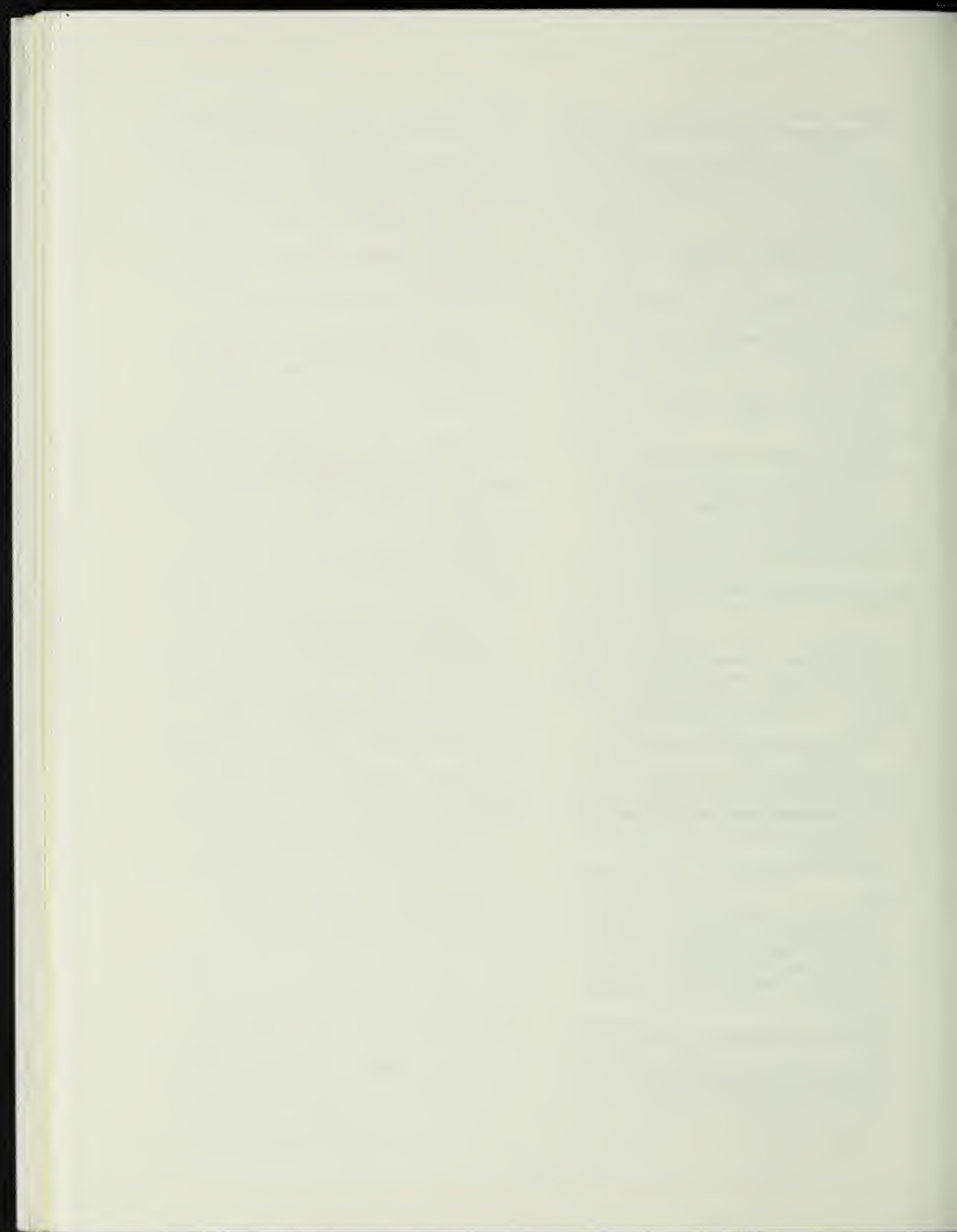
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## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering three classes. For information about a class, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). To register for a class, see your Training Management System (TMS) representative. A copy of the "Enrollment Form" is on page 6 and a list of TMS representatives is on page 7 of the *Human Resources Program and Course Guide* (Summer 1992). Also, a copy of the "Enrollment Form" is appended to this *Newsletter*. All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class. If necessary, CTD will schedule additional classes. If you cannot attend a class, please cancel your reservation at least *one week* before the class. Since the space in some classes is limited, there will be no refund for those who register for a charged class but do not attend.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### OVERVIEW OF THE X WINDOW SYSTEM (COURSE #565)

Goal: To learn how to use and set up the X Window System.

Length of Class: Two hours

Date and Time: July 15, 1992 (Wednesday), 9:00 a.m. to 11:00 a.m.

Location: Building 221, Room A-142

Maximum Class Size: 12

Suggested Reading: *X Window System User's Guide* (0-93712175-14-5)

Instructor: Dave Leibfritz

There is a \$25 charge for this class.

### USING DISSPLA GRAPHICS WITH X WINDOW WORKSTATIONS (COURSE #566)

Goal: To learn how to tailor your Disspla programs to work with the X Window System to produce animation.

Length of Class: One 2-hour session

Date and Time: July 22, 1992 (Wednesday), 9:00 a.m. to 11:00 a.m.

Location: Building 221, Room A-142

Maximum Class Size: 12

Requirements: Familiarity with Fortran and Disspla

Instructor: Dave Leibfritz

There is a \$25 charge for this class.



## USING NCSA TOOLS FOR DESKTOP SCIENTIFIC VISUALIZATION (COURSE #571)

**Goals:** To see what capabilities the National Center for Supercomputing Applications (NCSA) Imagetool and X DataSlice programs can provide for visual data analysis. To learn how to create Fortran or C programs to convert your data into the format required by these programs.

**Prerequisite:** Working knowledge of C or Fortran

**Length of Class:** One 3-hour session

**Date and Time:** July 24, 1992 (Friday), 9:00 a.m. to noon

**Location:** Building 221, Room A-142

**Maximum Class Size:** 12

**Suggested Reading:** *NCSA Image for the Color Macintosh Version 2.0*  
*NCSA X Image for the X Window System Version 1.0*  
*NCSA X DataSlice for the X Window System Version 1.0*  
*NCSA HDF Calling Interfaces and Utilities Version 3.1*

**Instructor:** Dave Lifka

There is a \$25 charge for this class.

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

| Course Name | Course Title                                |
|-------------|---------------------------------------------|
| SLFTEACH    | Introduction and Advanced Concepts of Xedit |

### DEC CBT Courses on the Central VAX 6410 (node ANLCV1)

(Enter RUN "course name" at the DCL level.)

|         |                                               |
|---------|-----------------------------------------------|
| VMSCAI  | Introduction to VAX/VMS                       |
| LSECAI  | Introduction to the Language Sensitive Editor |
| EVECAI  | Introduction to the Extensible VAX Editor     |
| DTRCAI  | Datatrieve for Users                          |
| DTRPCAI | Datatrieve for Programmers                    |

PHOTOCOPY THIS FORM

**ENROLLMENT FORM**

**Instructions:**

Photocopy this form, complete it, and give it to your TMS Representative.

Please enroll me in the following course(s):

|                     |                   |
|---------------------|-------------------|
| Course number _____ | Course name _____ |
| _____               | _____             |
| _____               | _____             |

Name \_\_\_\_\_ Badge \_\_\_\_\_

Division/Department \_\_\_\_\_ Building \_\_\_\_\_ Location \_\_\_\_\_ Phone \_\_\_\_\_

Division/Department Approval \_\_\_\_\_

Divisional Overhead Account \_\_\_\_\_  
(Required for select courses – see course description)





# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 23

NUMBER 8

AUGUST 1992

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DEPOSITORY

OCT 27 1992

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN



"First Among Equals"

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# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

|                                             |                          | Room  | Phone  | Electronic Mail Address |
|---------------------------------------------|--------------------------|-------|--------|-------------------------|
| Division Director                           | Mike Boxberger (Acting)  | A251  | 2-7155 | boxberger@anl.gov       |
| Computer Protection Program Manager         | Jean Troyer              | A240  | 2-7440 | ljtroyer@anl.gov        |
| Computing and Telecommunications Operations | Larry Amiot              | A237  | 2-5432 | B10523 AT ANLVM         |
| Computer Network                            | Bob McMahon              | B239  | 2-7270 | B17385 AT ANLVM         |
| Data Communications                         | Linda Winkler            | B251  | 2-7236 | B32357 AT ANLVM         |
| Service Engineering                         | Paul Phillips            | D118  | 2-4343 | B36679 AT ANLVM         |
| Network and Computer Operations             | Gary Schlesselman        | A113  | 2-5437 | B09819 AT ANLVM         |
| Day and Weekend Operation                   | Bob Bilshausen           | A134  | 2-5421 |                         |
| Document Distribution Counter               |                          | A134  |        |                         |
| Evening and Overnight Operation             | Mike Monczynski          | A134  | 2-5421 |                         |
| Tape Librarian                              | Sandra Vasko             | A134  | 2-7681 | B18669 AT ANLVM         |
| Trouble Reporting                           |                          | A134  | 2-5421 | noc@anl.gov             |
| Systems Programming                         | John Volmer              | B211  | 2-5449 | volmer@anl.gov          |
| Telephone Services                          | Allen Winter             | B247  | 2-2764 | B07059 AT ANLVM         |
| User Services                               | Fred Moszur              | A121  | 2-7419 | fredm@anl.gov           |
| Computer Use Authorizations                 | Fran Carnaghi            | A147  | 2-5425 | B27596 AT ANLVM         |
| Consultants                                 |                          | A139  | 2-5405 | CONSULT AT ANLVM        |
| Documentation Advice                        |                          | A139  | 2-5405 | CONSULT AT ANLVM        |
| Education and Assistance                    | Pete Bertoncini (Acting) | E101  | 2-4827 | B15013 AT ANLVM         |
| Management Information Systems              | Diane O'Brien            | B151  | 2-7167 | B26424 AT ANLVM         |
| Financial Systems                           | Nick Moore               | C115D | 2-8075 | B31048 AT ANLVM         |
| Human Resource Systems                      | Bob Hischier             | B147  | 2-7272 | B22639 AT ANLVM         |
| Information and Production Services         | Miriam Bretscher         | B139  | 2-7252 | B26187 AT ANLVM         |
| Materials and Plant Systems                 | Rich Slade               | B159  | 2-7329 | B32848 AT ANLVM         |
| Planning, Finance, and Administration       | Mike Boxberger           | A245  | 2-5638 | B34540 AT ANLVM         |
| Scientific Applications and Research        | Charles Mueller          | A231  | 2-7153 | B11284 AT ANLVM         |
| Software Management Program                 | Dennis Tussing           | B228  | 2-4656 | B35139 AT ANLVM         |

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 4/490 with Sun OS 4.1.2, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.5, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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## COMPUTING COMMENTS

### NEW DIRECTIONS FOR THE COMPUTING AND TELECOMMUNICATIONS DIVISION

The rapid movement of computer technology toward powerful and affordable workstations and the growing access to state-of-the-art vector and massively parallel supercomputing at offsite locations has necessitated a re-evaluation of Laboratory computing needs. In a report dated March 4, 1992, the Computing Policy Committee concluded that scientific computing was rapidly moving away from the Laboratory central mainframes to local workstations or to the powerful machines located offsite.

For these reasons, in May 1992, Dr. Alan Schriesheim, Laboratory Director, asked Dr. Frank Fradin, Associate Laboratory Director for Physical Research, to form a committee to evaluate the future directions of the Computing and Telecommunications Division (CTD). The committee recommended that the scientific computing orientation of CTD be de-emphasized and that increased emphasis be placed on Laboratory-wide networking and administrative computing support. CTD has been transferred from Physical Research to Operations as of July 1, 1992. Ron Teunis, Chief Operations Officer, has established an Operations Management Steering Committee to plan the transition of the CTD organization.

### PROJECTED FY1993 USE OF CENTRAL COMPUTING RESOURCES

The Chief Financial Officer has issued a formal request to each Associate Laboratory Director's area to provide estimates by cost center of projected FY1993 usage of central computing resources. These projections are essential to the transition planning and budget review for CTD that is currently under way. Therefore, computer users should inform their division directors of their needs for central services now so that available services will continue.

## COMPUTING CENTER LABOR DAY HOLIDAY SCHEDULE

The CTD computing systems will remain in operation with at least one operator in attendance throughout the Labor Day 1991 holiday to provide services comparable to the normal weekend services. A computer operator will be available to mount tapes; to check personal tapes in and out; and to process and distribute output from the IBM 3800 laser printer, the IBM impact printer, the CalComp 5835XP color plotter, and microfiche.

All interactive and batch computing will be available at weekend and holiday rates from 7:00 a.m. on Saturday, September 5, 1992, until 7:00 a.m. on Tuesday, September 8, 1992. For information about unexpected changes in service, call the Current System Status Recorded Message at extension 2-5466. For assistance in accessing scheduled services or to report difficulties, call the computer operator on duty at extension 2-5421.

## COMPUTING CLASSES SCHEDULED FOR AUGUST AND SEPTEMBER 1992

During August and September 1992, CTD will offer ten classes. The schedule (with course numbers and fees) is appended to this *Newsletter*. For information about a class, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). To register for a class, see your Training Management System (TMS) representative. A copy of the "Enrollment Form" is on page 6 and a list of TMS representatives is on page 7 of the *Human Resources Program and Course Guide* (Summer 1992). Also, a copy of the "Enrollment Form" appears with the class schedule appended to this *Newsletter*. All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class. If necessary, CTD will schedule additional classes. If you cannot attend a class, please cancel your reservation at least *one week* before the class. Since class space is limited, there will be no refund for those who register for a charged class but do not attend.

*Using Unix Workstations and the Distributed Queuing System (DQS) for Batch Computing* (one 3-hour lecture and one 2 1/2-hour lab) introduces the



Distributed Queuing System (DQS) that CTD has installed and tested on several of the Sun workstations in User Services. The commands for DQS will be discussed and exemplified. Students will receive hands-on experience in using DQS during the interactive laboratory session. A working knowledge of Unix is necessary. There is a \$25 charge for the class.

*Getting Started with the Advanced Visualization System (AVS)* (one 3-hour session with optional lab) presents basic features of AVS and instructs new users how to manage the AVS environment to address visualization needs. Topics include data types and data import strategies, use of the Geometry Viewer to interact with and transform geometry objects, basic geometric primitives, and visualization techniques involving these primitives. Participants will learn fundamental concepts of designing modules as well as forming module networks to handle common visualization tasks. Knowledge of Unix and some programming skills will be helpful. There is a \$25 charge for the class.

*Using the Emacs Editor in Unix* (one 3-hour lecture and one 2 1/2-hour lab) explains how to use the powerful GNU Emacs editor from the Free Software Foundation. The topics include the fundamentals of editing text, C code, Fortran code, and TeX documents. The advanced topics include compiling under Emacs, invoking shells, editing the directory, using mail, using a single source file to produce man pages and TeX source, and customizing the editor. There is a \$25 charge for the class.

*Using the Vi Editor in Unix* (one 2-hour session) provides users introductory instruction and hands-on experience with the vi interactive text editor. The vi editor has been provided with Unix-based operating systems for many years, and versions have recently been made available for use under operating systems such as VMS and DOS. Prior Unix experience is not necessary. There is a \$25 charge for the class.

*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

*Introduction to Unix* (two 4-hour lectures with labs) is an overview of the Unix operating system.

Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system, changing file permissions, using mail, configuring the user environment, creating, compiling, and executing programs, using job and process control, using the Transmission Control Protocol/Internet Protocol (TCP/IP), using good computer protection practices, and using many useful commands. CTD will establish temporary attendee accounts on the CTD Sun Unix server for the duration of the class. The lab will entail the use of Unix with Sun workstations to reinforce the lecture content. This class will assume knowledge of a Unix editor such as vi or Emacs. There is a \$50 charge for the class.

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour lecture with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text, to submit IBM MVS batch jobs, and to review IBM MVS batch output.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should have an account on an ANL VAX system before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425. There is a \$25 charge for the class.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals. There is a \$25 charge for the class.

*Using CMS with IBM 3270-Compatible Display Terminals* (two 3-hour lectures with labs) is for CMS users of IBM 3270-compatible display terminals, IBM or Apple Macintosh personal computers with the tn3270 program, or ASCII terminals with the Hydra Protocol Converter. This class is for people who send or receive electronic mail, who organize information in files and obtain information from files, who create and modify data, programs, or text files, and who use application packages such as Cuechart, SAS, Script, and Tellgraf. The labs use ASCII terminals with the Hydra Protocol Converter, but the principles learned will apply to all the terminals and access methods mentioned above. Everyone registering for the CMS class must have a CMS account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

## COMPUTER PROTECTION

### CTD HOSTS CIAC WORKSHOPS

A team from the DOE Computer Incident Advisory Capability (CIAC) conducted two Computer Security Incident Handling workshops on July 21 and 22. The first session, "CIAC Incident Handling Workshop for Technical Personnel," was a day and a half long and was geared towards system managers and other technical personnel. The second session, "CIAC Incident Handling Workshop for Managers," was half a day long and was intended for those with computer protection management responsibilities.

CIAC recommended two virus abatement tools: *Data Physician Plus!* Version 3.1A for IBM-compatible computers and *Disinfectant* Version 2.9 for Macintosh computers. Both software packages are available online or from the CTD Document Distribution Counter (see "Public DOS File System Available" in the March 1992 *Newsletter*).

CTD hosted the workshops in Building 221, and they were videotaped for future use in education and awareness training. Availability and distribution of the videotapes will be announced at a later date. For more information, contact Jean Troyer at extension 2-7440.

A significant number of the attendees surveyed indicated that the workshops outlined procedures and activities they could incorporate in their daily responsibilities to achieve improved and enhanced computer protection.

### DOE OBTAINS UPDATE TO VIRUS DETECTION AND ERADICATION PROGRAMS FOR LABORATORY-WIDE USE

To combat the threat of viruses that can infect MS-DOS computers, the Department of Energy (DOE) headquarters has acquired an update for the agency-wide license of Data Physician Plus. The Data Physician Plus license allows us to make a copy available for every ANL or DOE owned computer running DOS 2.0 or higher software. The acquisition includes one year's maintenance. CTD will distribute other updates as we receive them.

CTD is distributing a 3 1/2-inch diskette with Data Physician Plus Version 3.1A to Argonne's IBM-PC anti-virus team members, who in turn will distribute it to their users. *Data Physician Plus! Computer Virus Protection System* (a document and 3 1/2-inch diskette with Version 3.1A) is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). You may also get a copy of this program from the DOS Public Volume. For further information, see "Public DOS File System Available" in the March 1992 *Newsletter*.

There are some new features in the software package. VirHUNT is now able to catch more virus relatives by matching the first signature of the virus. Previously, VirHUNT identified a virus enough to know that it had a "variation of" a known virus; then, it performed additional checks on areas of the virus that were subject to change. This feature is especially helpful in identifying boot sector viruses. For more information, see the README file included on the disk. The README file also contains instructions for setting up VirHUNT to run automatically at specified intervals.

CTD recommends that you use the following two steps to check for viruses:

First, run the VirHUNT program that comes with Data Physician Plus to see whether your files are infected. When VirHUNT completes with a



**Scan Complete! NO VIRUSES FOUND**

message, no further action is necessary; and you may quit the program.

Second, if VirHUNT does identify an infected file, notify your IBM anti-virus team member or computer protection program representative for help in removing the virus and assuring that it does not spread. Your team member or representative should also notify Jean Troyer, the Computer Program Protection Manager, at extension 2-7440.

**DISINFECTANT 2.9 AVAILABLE FOR APPLE MACINTOSH COMPUTERS**

Disinfectant 2.9, a minor upgrade to the Apple Macintosh Disinfectant 2.8 program, is now available on the Apple Macintosh Public Volume in the Virus Abatement folder. This upgrade can now detect the T4 virus.

To copy Disinfectant 2.9:

1. Select the Chooser in the Apple menu.
2. Select the AppleShare icon.
3. Select Public AppleTalk from AppleTalk Zones.
4. Select VAXserver from the file server.
5. Click OK.
6. Connect to the file server as Guest.
7. Click OK.
8. Select the Public Volume.
9. Click OK.
10. Close the Chooser.
11. Open the Public Volume.
12. Open the Virus Abatement Software folder.
13. You may either run Disinfectant 2.9 from the Public Volume or copy the program onto your hard disk

Users who do not have access to the Public Volume can get Apple Macintosh *Disinfectant* v2.9 (a 3-1/2 inch diskette) at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

**CMS NEWS****DISSPLA IN CMS TO BE DISCONTINUED**

Because of low usage and the availability of Disspla in MVS, in the VAX cluster, and the Achilles Sun server, CTD will discontinue Disspla in CMS on October 1, 1992. The removal of Disspla will reduce CTD's costs approximately \$5,000 per year in FY1993; had CTD kept Disspla, it would have increased CTD's costs approximately \$6,000 per year starting in FY1994. Given declining usage in CMS, increasing Disspla costs, and the availability of Disspla on other central platforms, there is no strong justification to continue Disspla in CMS. Users with CMS Disspla applications should contact the User Services consultants at extension 2-5405 for assistance in migrating their Disspla applications to the central VAX cluster.

**TELLAGRAF IN CMS TO BE PHASED OUT NEXT YEAR**

In FY1994, the costs for Tellagraf and the Graphics Connection in CMS will rise from approximately \$15,000 per year to over \$21,000 per year. Given the availability of a lower-cost Tellagraf on the central VAX cluster, CTD plans to discontinue Tellagraf in CMS at the end of FY1993. Tellagraf users should use FY1993 to migrate their Tellagraf applications to the central VAX cluster. Users who need assistance moving their applications should contact the User Services consultants at extension 2-5405.



## CRAY NEWS

### **CRAY TO BE SHUT DOWN ON OCTOBER 1, 1992**

On Thursday, October 1, 1992, the Laboratory will shut down the Cray X-MP/18 computer because of the continued move of scientific computing to distributed processing platforms and the underrecovery of Cray costs. The Computing and Telecommunications Division (CTD) has met with users and has conducted several experiments with rates and time parameters over the past eight months. These actions have failed to stimulate demand and recovery.

CTD encourages all Cray users to find alternate sources of computing (for example, divisional computing platforms, CTD platforms, or the Cray X-MP at EG&G in Idaho). CTD has tested access to the EG&G Cray and has demonstrated file transfer and batch processing capabilities for users. Also, CTD has converted or migrated some specific user codes to demonstrate this alternative. For more information about using the EG&G Cray, contact User Services at extension 2-5405.

Additionally, CTD is ordering two reduced-instruction-set computer (RISC) workstations for general use to be installed in late August or early September 1992.

Cray disk storage will not be available after October 1, 1992. Users will have to move Cray-generated data stored on the Cray disks before the shutdown. Data that contains Cray binary data information will have to be converted to the IEEE floating-point format to be used on other Unix platforms. Data that has been moved to the IBM mainframe via the front-end system will have to be preprocessed to remove the front-end blocking information before it can be used on the other Unix systems. For help with transition activities, call Fred Moszur at extension 2-7419.

CTD is also redirecting some of the allocated General Purpose Equipment (GPE) funds to acquire a network file server and appropriate software. This server will provide file space to take the place of the 20 gigabytes of Cray disk storage that served as a network file server.

## MANAGEMENT INFORMATION SYSTEMS

### **DEVELOPMENT OF ANL CHEMICAL INVENTORY SYSTEM UNDER WAY**

Environment, Safety, and Health (ESH), CTD, a project management team, and a user group are developing a comprehensive menu-based Chemical Inventory System (CIS) to be operational in December 1992. CIS will be associated with the Laboratory-wide network and will connect a wide variety of computer platforms. The completed system will provide chemical inventory data for ANL chemical users and for regulatory reporting by ANL management. There will be less waste because the fast access to inventory data will allow inventory exchange among divisions.

Acceptance of the design of this system by a wide variety of users is critical to its overall success. For this reason, the Laboratory has formed a Task Group with representatives from all involved areas. This Task Group will be involved in the system requirements, acceptance, and implementation. Development of this inventory system is closely related to and will rely on input from other operations at the Laboratory (including Procurement, Waste Management, the Medical Department, and ESH training).

We will develop this system with Oracle, a relational database management system. CIS will operate on one of Chemistry's VAX computers for the first six months and then will move to a Unix-based ESH server.

If you have questions or comments, call Don Doyle at extension 2-5041.

### **MATERIAL SAFETY DATA SHEET SYSTEM UNDER DEVELOPMENT**

Environment, Safety and Health (ESH), CTD, the project management team, and a user group made up of staff from over ten ANL divisions are developing a Material Safety Data Sheet (MSDS) System that will be operational in early October 1992. MSDS is one of the major components of the ANL Chemical Management System. The Chemical

Inventory System (CIS) is the other major component being developed this year. (See "Development of ANL Chemical Inventory System Under Way" in this *Newsletter*.)

The MSDS System will store images of material safety data sheets. This system will allow users to search the system's databases to locate MSDS sheets and to send a fax of these MSDS sheets to their buildings. The system will also include control and monitoring features that will automatically distribute printed copies of new or updated MSDS sheets to buildings where the chemicals are used.

MSDS will operate on one of Chemistry's VAX computers by using the Oracle database management system for the first six months and then will move to a Unix-based server. Laboratory-wide access will be available when user training is completed in October 1992.

If you have any questions about the system, call John Davis (ESH) at extension 2-2865 or Bob Hischier (CTD) at extension 2-7272.

## **INTEGRATED FINANCIAL SYSTEM UPDATE**

### **Effort System**

In June 1992, three scientific divisions began testing the new Effort System. The Effort System runs under the Customer Information Control System (CICS) on the IBM mainframe and allows programmatic divisions to enter scientific effort data at the end of the month instead of sending the effort cards to the Office of the Chief Financial Officer (OCF). We hope that this system will result in a reduction of the window for recording effort data. Currently, the effort cards have to be sent to Cost Accounting by 11:30 a.m. on the fourth working day before the end of the month. This schedule causes discrepancies with the Payroll System that reflects the full calendar month. As a consequence, paid absence effort data has to be corrected the following month.

Additionally, the system will provide an earlier warning of errors where cost codes do not exist or have been closed. When this system is implemented, there will be fewer errors for Cost Accounting to resolve and a reduction in the number of corrections in subsequent months.

In July and August 1992, the Integrated Financial System (IFS) Project Team plans to add more testers. After the system has been successfully shaken down, the IFS Project Team will announce plans for a production cutover. At this time, we expect partial implementation to begin with the October 1992 month-end close and to continue through January 1993, as more divisions are cut over each month.

OCF is finalizing changes to the procedures for recording scientific effort, including required dates for verification by employees of the accuracy of the effort recorded in IFS. Training sessions for more divisions will begin in the new fiscal year.

### **Information Organizer**

Currently, the Information Organizer (IO) reporting system for IFS is being modified to incorporate changes requested by users since the original version was introduced two years ago.

Some of the features being added are (1) the ability to copy globally report requests from one user to another, (2) the addition of user profiles to make global changes to report requests easier, (3) the ability to have more selection criteria fields for each report, and (4) the online verification of which selection criteria fields are valid for each report. We expect to have the new version of IO ready for preliminary user testing in late October 1992 and plan to switch all users to the new version in January 1993.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the third working Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## **MVS NEWS**

### **STATUS OF MVS/XA TESTING**

During August 1992, the Multiple Virtual Storage/Extended Architecture (MVS/XA) test system gradually will become available to larger and larger user communities as more and more user applications are offered. In early August 1992,



MVS/XA batch services (including VS Fortran, SAS, and Cobol) will be accessible via standard MVS job submission by adding `//*MAIN CLASS=WXA` to the JCL. MVS/XA will not have access to tapes or tape cartridges until November 1992. The upgrade to CA-1 Tape Management System (TMS) 5.0 must be completed for the existing MVS/SP system before tape access can be offered under MVS/XA.

CTD will announce the availability of the MVS/XA test system and will update testing status via the online NEWS.

During the middle of August 1992, Wylbur and MVS/TSO will be available via the Systems Network Architecture (SNA) screen names XAW and XAT, respectively. Line-by-line terminal access will not be available for the test. Toward the end of August 1992, a test Customer Information Control System (CICS) will be available with the specific applications (for example, IFS and TMS) determined by the CTD Management Information Systems (MIS) organization.

CTD expects to provide the MVS/XA test system until December 1992, when it will become production. Users with questions should contact John Volmer at electronic mail address `volmer@anl.gov` or at extension 2-5449.

#### **FORTRAN HX AND FORTRAN HXE COMPILERS CONSIDERED FOR ELIMINATION**

CTD is considering elimination of the Fortran H-Extended and H-Extended-Enhanced compilers.

These compilers cost the Laboratory \$5,112 per year. For several years, VS Fortran has superseded Fortran HX and Fortran HXE. VS Fortran is functionally equivalent to Fortran HX or Fortran HXE and offers additional features such as an interactive debugger and the ability to use MVS/XA.

Users with applications that would be affected by the elimination should contact the User Services consultants at extension 2-5405 to discuss alternatives.

#### **BMDP IN MVS TO BE DISCONTINUED**

On Wednesday, September 30, 1992, CTD will discontinue the Biomedical Computer Programs (BMDP) in MVS. BMDP has been licensed in MVS with funds from the Biological and Medical Research Division (BIM), which was the only division that relied on BMDP for its research. However, BMDP is now available on personal computers, and BIM no longer needs it in MVS.

### **PERSONAL COMPUTING**

#### **PC LAN TESTBED PROVIDES HETEROGENEOUS TEST ENVIRONMENT**

The User Services Section of CTD uses a personal computer (PC) Local Area Testbed to investigate LAN capabilities and difficulties without affecting the Laboratory-wide network. A router keeps traffic on this test network from the Laboratory-wide network. While remaining a true production network, this network includes several different operating systems, server hardware, and protocols. The Testbed helps local area network (LAN) administrators determine workable solutions for the problems affecting their production networks.

Early LANs at the Laboratory started as 3Com 3+Share networks. Many of these networks are still under consideration for migration to another system. The Testbed (see Figure 1) demonstrates a network where Microsoft's LAN Manager, Novell's NetWare, and DEC's Pathworks co-exist and where connectivity is retained to AppleTalk and older 3Com servers. See Table 1 for the Testbed configuration.



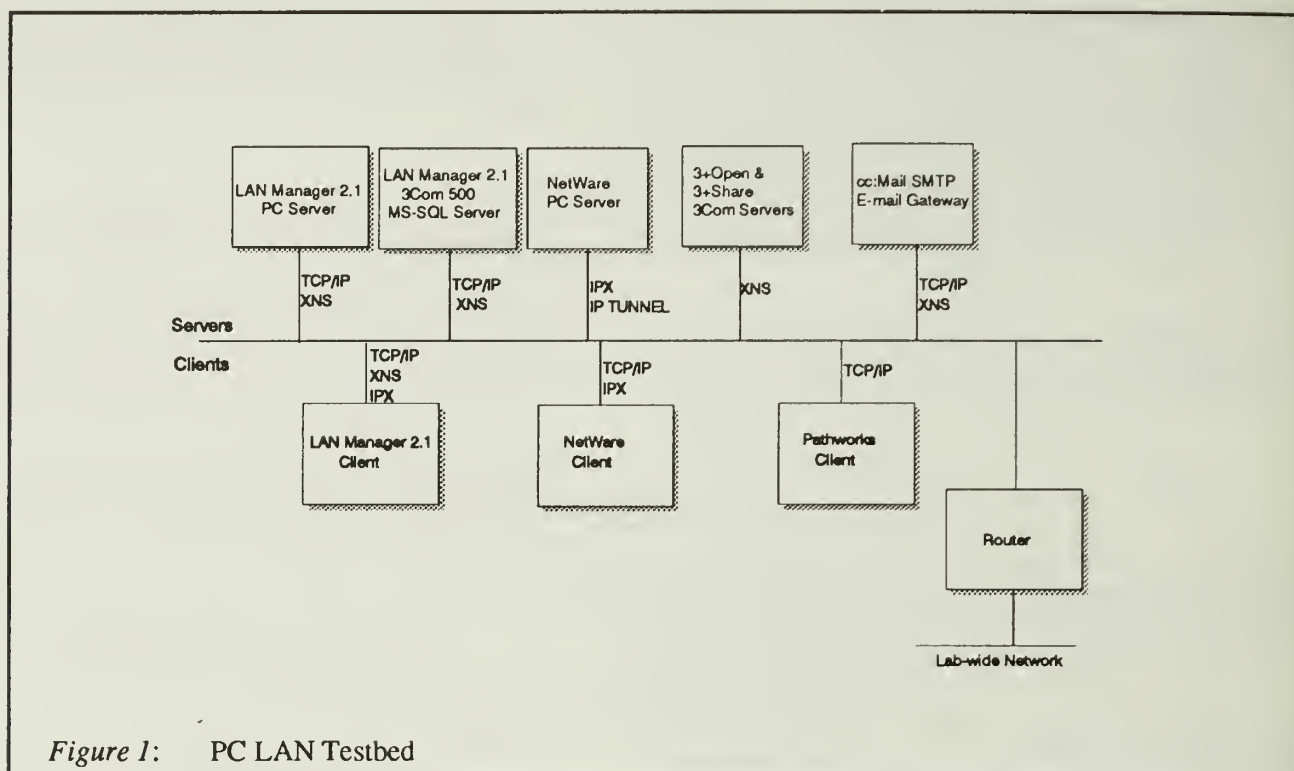


Figure 1: PC LAN Testbed

Features of the PC LAN Testbed include:

- The Simple Mail Transport Protocol (SMTP) Electronic Mail Gateway, which lets PC users send and receive Internet mail from their desktop. In the past, PC users would have to log on to a mainframe to access the Internet.
- Pathworks connectivity (see "Pathworks/LAN Manager PC LAN Connectivity" in this *Newsletter*).
- Apple Macintosh services, which allow Apple Macintosh-IBM PC file exchange and printer sharing. Apple Macintosh compatibility is important because there are many Macintoshes at the Laboratory.
- The Novell IPX protocol for the LAN Manager client, which allows the client to access the Novell file server. This access is the first step in gaining connectivity between these two prominent network operating systems at the Laboratory.
- Microsoft's Structured Query Language (SQL) server database application for true client/server development on PC LANs. Because of the current trend of distributed database applications,

many LAN administrators are considering a PC LAN-based client/server system. Because the SQL server now uses the Transmission Control Protocol/Internet Protocol (TCP/IP), users can access it remotely for SQL application testing.

- Public resource on the LAN Manager V2.1 server, which contains anti-virus software, the newest drivers for Windows, and other public domain applications. Remote LAN Manager clients, Pathworks clients, and Apple Macintoshes may log in as the "guest" account to access these files.

Comark Inc. (Bloomington, Illinois) has provided a USA Flex 486 PC demonstration unit as our OS/2-based LAN Manager server. Two personal computers in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142) are available to demonstrate client capabilities.

Direct questions about the PC LAN Testbed to Jim Regula at electronic mail address [regula@anl.gov](mailto:regula@anl.gov) or at extension 2-7622 or John Jasunas at electronic mail address [jasunas@anl.gov](mailto:jasunas@anl.gov) or at extension 2-7346.

*Table 1: Testbed Configuration***Hardware**

486 PC servers  
3Com 500-series servers  
3Com 400-series server  
3Com 3Servers  
286 electronic mail gateway

**Operating Systems**

LAN Manager V2.1  
LAN Manager V2.0  
Novell NetWare V3.11  
3Com 3+Open  
3Com 3+Share

**Protocols**

TCP/IP  
IPX  
XNS  
AppleTalk

**PATHWORKS/LAN MANAGER PC LAN CONNECTIVITY**

Digital Equipment Corporation's (DEC's) Pathworks and Microsoft's LAN Manager are both popular network operating systems for personal computer (PC) local area networks (LANs) at the Laboratory. New versions of these products have included the Transmission Control Protocol/Internet Protocol (TCP/IP). With this protocol running on both the server and client, high levels of connectivity have been established between the two products.

DEC's Pathworks product is actually an extension of the original LAN Manager network operating system from Microsoft; therefore, the syntax of the basic commands is the same. Some advantages of this new connectivity are that LAN Manager clients can now access VAX-based output services (such as the CalComp plotter or the Seiko color PostScript printer) as network printers attached directly to the LPT printer port. Pathworks clients can link to any LAN Manager server onsite and can access resources (with proper user authority) like the Structured Query Language (SQL) server or network printers.

The software required to achieve this connectivity on the Pathworks client includes two licenses: one standard Pathworks for DOS V4.1 and one Path-

works for DOS (TCP/IP) V 1.1. With the LAN Manager, the LAN Manager V2.1 client has included TCP/IP in the basic product. Just a Pathworks client license is necessary.

To configure the Pathworks client to access remote LAN Manager servers, you must make an entry in the HOSTS file with the server name and IP number. You must make a similar entry with the INETNAME command. For configuration on the LAN Manager client to access a Pathworks server, you must make an entry for the server name and IP number in a similar HOSTS file.

To link to resources on a server, the LAN Manager NET command works best on both clients. For example, to link the CalComp plotter to a LAN Manager client, enter:

```
NET USE LPTn: \\ANLCV1\ANLCC
```

where "n" is "1," "2," or "3," depending on the printer definition.

To link to the Laboratory-wide DOS public file system resource, enter:

```
NET USE x: \\ANLCV1\PCPUBLIC
```

where "x" is any free logical drive letter.

NOTE: PCPUBLIC is an alias for the DOS-PUBLIC resource; LAN Manager will not accept resource names longer than eight characters.

To link to a resource on a LAN Manager server by using a Pathworks client, the command syntax is the same:

```
NET USE x: \\SERVERNAME\RESOURCE
```

The TCP/IP protocol uses a small amount of random-access memory (RAM): 86K for Pathworks and 95K for LAN Manager. Now that the TCP/IP transport protocol is a part of the PC LAN environment, you can achieve connectivity between these two different network operating systems and have good performance. Both clients can use MS Windows 3.1 as the user interface. For more information about LAN Manager/Pathworks connectivity or using TCP/IP as a transport protocol, contact Jim Regula at electronic mail address regula@anl.gov or at extension 2-7622.



### PC LAN CONNECTIVITY OPTIONS

When installing a personal computer (PC) local area network (LAN) in your division, you should look closely at your present and future connectivity needs in making your PC LAN selection.

CTD's User Services Section has conducted tests of the three major PC LAN operating systems: Microsoft LAN Manager, Novell NetWare, and Digital Equipment Corporation (DEC) Pathworks. Transmission Control Protocol/Internet Protocol (TCP/IP) utilities for the operating systems were included in these tests.

The following list depicts current working options for meeting specific PC-user access needs:

- |           |                                                                                                                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Need:     | To link to a 3Com 3+Share or 3+Open server.                                                                                                                                            |
| Product:  | Only LAN Manager with the Xerox Network System (XNS) protocol will allow the PC client to link to the server by using 3Com's 3F, 3N, and 3P utilities, plus keeping LAN Manager links. |
| Need:     | To access a LAN Manager V2.1-based server.                                                                                                                                             |
| Products: | LAN Manager V2.1 client<br>or<br>Pathworks for DOS V4.0 client with TCP/IP.                                                                                                            |
| Need:     | To access a Pathworks server.                                                                                                                                                          |
| Products: | Pathworks for the disk operating system (DOS)<br>or<br>a LAN Manager V2.1 client (a Pathworks client license is still necessary).                                                      |
| Need:     | To access a Novell NetWare V3.11 server.                                                                                                                                               |
| Products: | Novell NetWare client<br>or<br>a LAN Manager V2.1 client on the same network cable or PBX partition.                                                                                   |
| Need:     | To access a Unix Network File System (NFS) server.                                                                                                                                     |
| Product:  | If the NFS server volume is VAX mountable, Pathworks for DOS would allow the PC client to mount the NFS volume.                                                                        |

Need: To access to Unix-based machines and to perform simple Telnet and file transfer protocol (FTP).

Products: MS-LAN Manager TCP/IP Utilities  
DEC Pathworks for DOS (TCP/IP)  
Novell NetWare LAN Workplace for DOS  
NCSA Telnet

Direct questions about PC LAN connectivity to Jim Regula at electronic mail address [regula@anl.gov](mailto:regula@anl.gov) or at extension 2-7622.

### HYPERCARD ANLPHONE FOR APPLE MACINTOSH

ANLPHONE (available on the Public Volume) is an electronic phone book that requires at least one megabyte of memory to operate. The Human Resource database supplies the information contained in this program, which was written by CTD in HyperCard for the Apple Macintosh.

To access the Public Volume:

1. Select the Chooser in the Apple menu.
2. Select the AppleShare icon.
3. Click Public AppleTalk from AppleTalk Zones.
4. Select VAXserver from the file server.
5. Click OK.
6. Connect to the file server as Guest.
7. Click OK.
8. Select the Public Volume.
9. Click OK.
10. Close the Chooser.
11. The Public Volume will appear on your desktop.

To use ANLPHONE, select the ANLPHONE folder; then click two times on the stack, ANL Phone Main. You will find yourself in the control stack. From here, you can click any of the following buttons:



**INSTRUCTIONS** Gives you information on how to use the program. It also defines the meaning of each button.

**FIND NAME** Prompts you to enter a last name. We recommend that you type as much of the last name as you can. The program will then open the appropriate address book and will find the name.

If you have any difficulties with the HyperCard ANLPHONE program, call John O'Donnell at extension 2-3251.

3. Open the desired template.
4. When you are ready to save your work, choose Save As from the File menu.
5. Click the Desktop button.
6. Type in the name of your file and click Save; the saved file will appear on your Desktop.

Users with questions or suggestions for modification of the templates should call Cliff Caruthers at extension 2-4216.

### USING CTD DOCUMENT TEMPLATES

Apple Macintosh Word 5.0 and PageMaker 4.0 users now have access to the new CTD Communication Templates folder in the CTD Public Volume on the VaxServer2 file server.

The CTD Communication Templates folder contains templates for an addendum, an article, a bulletin, a letter, a meeting announcement, a memorandum, a presentation, and a technical memorandum. Templates relevant to other ANL organizations are consistent with ANL conventions.

To access the CTD Public Volume:

1. Select the chooser in the Apple menu.
2. Select the AppleShare icon.
3. Select Public AppleTalk from AppleTalk Zones.
4. Select VAXserver2 from the file server.
5. Click OK.
6. Connect to file server as Guest.
7. Select CTD Public Volume; then close the chooser.

To use the templates:

1. Double-click on the CTD Public Volume icon.
2. Open the CTD Communication Templates folder.

### SCIENTIFIC WORKSTATIONS

#### BASIC REQUIREMENTS FOR USE OF DQS

As first announced in the July 1992 *Newsletter*, CTD has been investigating and evaluating the Distributed Queuing System (DQS) developed at the Supercomputer Computations Research Institute at Florida State University. DQS is a software package that makes it possible for scientists and engineers to submit batch jobs to a network of heterogeneous workstations running a version of the Unix operating system.

To use DQS on a given network, the following prerequisites must be met:

1. All workstations must be Unix-based and be able to communicate with one another via the Transmission Control Protocol/Internet Protocol (TCP/IP).
2. One workstation must be designated to run the DQS master process (qmaster), though you can submit DQS jobs from any Unix workstation on the network, as long as that workstation has been added to the qmaster's trusted-host table. A user must have the same login name and UID on the submitting workstation, the workstations running the qmaster, and all workstations to which the job is to be submitted.
3. The DQS source code is written in C and must be compiled and linked separately for each type of architecture (for example, SUN, IBM, DEC) on the network.

Workstation owners can suspend DQS batch jobs if these jobs affect their interactive sessions. It is important to note that interactive workstation users are not giving up control of their workstations to DQS.

4. Each workstation on the network must remain on. Do not shut these workstations off.

CTD is continuing to evaluate DQS. We are working closely with the developers at the Supercomputer Computations Research Institute. On August 12, 1992, we will offer a one-day workshop on DQS. For more information on the workshop or DQS, contact Larry Rudsinski at extension 2-7219 or via E-Mail to [rudsinski@anl.gov](mailto:rudsinski@anl.gov).

#### **CTD PLANS FOR LABORATORY-WIDE AUTHENTICATION SERVICE**

Authentication of the identity of a user across a network by a server has become a major issue. Most current methods rely on sending passwords over the network where they can easily be stolen or on having a workstation authenticate the identity of the user, requiring the server to trust the workstation. Both of these methods have major security flaws. Securing a network from electronic eavesdropping or snooping is all but impossible. Workstations in public areas or outside the control of the server's administrator cannot always be trusted and may be compromised. (The .rhost facility of Unix is an example.)

As part of an Energy Sciences network (ESnet) Authentication Task Force Project, CTD will be testing Kerberos on several ANL systems. We intend to have a version running on a Sun server by the end of July 1992.

Kerberos, developed by the Massachusetts Institute of Technology as part of Project Athena, is an authentication service based on mutual trust and private key encryption. Since both the user and the server to which the user is requesting service trust the Kerberos server, they can then trust each other. This authentication process uses encrypted transmissions between the user's workstation and the Kerberos server. The Kerberos server then sends a "ticket" to the user that is good for the requested service. At no time do clear text passwords go over the network.

Based on our testing, CTD is considering offering a Kerberos service for the Laboratory that would consist of a Kerberos server and one or more back-up servers. We would maintain these servers at the highest levels of security and availability possible. CTD would establish an easy enrollment process that would let users enroll with a single Laboratory-wide name, which could then be used on any workstation that accepts Kerberos authentication. We would provide the Kerberos software that is necessary on servers and workstations (which might eventually include IBM Personal Computers and Apple Macintoshes). Not only would this service provide a Laboratory-wide userid naming convention, it will simplify the work of users who use multiple systems.

Anyone interested in participating in a test of Kerberos should contact Doug Engert at electronic mail address [deengert@anl.gov](mailto:deengert@anl.gov) or at extension 2-5444.

#### **CTD TO PROVIDE THE ANDREW FILE SYSTEM**

The Network File System (NFS) is the current *de facto* standard for distributed file systems today. Security and scalability problems with NFS have limited its usefulness mostly to servers and clients that are under the control of a single system administrator.

As part of an Energy Sciences network (ESnet) Andrew File System (AFS) Task Force, CTD will be evaluating AFS on a Sun server and several clients. AFS (originally developed at Carnegie-Mellon University) is now a commercial product of Transarc Corporation. AFS was designed as a wide-area distributed file system. This system includes a common naming convention for all AFS files that allows AFS servers at other organizations to be accessed easily. AFS uses Kerberos for its authentication and thus avoids many of the security problems of NFS. It caches files on a workstation's disk, which lowers network traffic, improves performance, and allows a single file server to serve more workstations. AFS also permits access to remote file systems across Internet. Additional file system enhancements allow replicated file systems, the moving of parts of file systems from one server to another, and easy back-ups.



Currently, AFS is commercially available for several different systems (including SunOS, AIX, NeXT, and Ultrix). It has been selected as the Distributed File System component of the Open Systems Foundation/Distributed Computing Environment (OSF/DCE). There is also an NFS-to-AFS translator for those systems that cannot run AFS.

CTD is obtaining a server license, unlimited client licenses, and the NFS/AFS translator for a Sun server. Based on our experience with AFS, CTD will invite other users with Sun workstations to participate in the testing at a later time, especially those users who are collaborating with other ESnet sites that use AFS.

## TELECOMMUNICATIONS NEWS

### FDDI STATUS

The installation of a Laboratory-wide fiber optic cable plant is progressing rapidly and should be finished by fall 1992. This project involves pulling 36 fibers (24 general-purpose multi-mode fibers and 12 high-performance single-mode fibers for future use) to the following buildings: 200, 201, 202, 203, 205, 206, 207, 208, 211, 212, 213, 214, 221, 222, 223, 301, 302, 308, 310, 330, 335, 362, and the Advanced Photon Source. Users in buildings not mentioned but who require high-speed networks should call the CTD Network Section at extension 2-4360 to discuss adding their buildings to this cable plant later.

As CTD installs the fiber-optic-cable plant, new opportunities for high-speed networks will arise. The first is the expansion of the Laboratory-wide Fiber Distributed Data Interface (FDDI) network. FDDI is a fault-tolerant, 100 megabits per second, fiber-optic-based network. Divisions will connect to this network through multi-protocol routers. The divisions are responsible for purchasing these routers, finding a secure area for them in their buildings, and putting fiber between the cable plant and this equipment. This high-speed network should pass only routable protocols (AppleTalk, the Digital Equipment Corporation network [DECnet], the Internet Protocol [IP], the Open Systems Interconnection [OSI], and the Xerox Network System [XNS]). For more information about the

installation of this intra-building fiber, call Tim Kuhfuss at extension 2-4360.

In addition to offering the Laboratory-wide FDDI network, CTD is installing another fiber-optic-based general-purpose network. This network, the Argonne National Laboratory Fiber-Optic Ethernet, will provide full Ethernet (10 megabits per second) connections to any building on the Laboratory-wide fiber-optic cable plant. This network will handle routed and bridged protocols (the protocols mentioned above and the Local Area Transport [LAT], the Local Area System Transport [LAST], and the Local Area VAX Cluster [LAVC]). It will be built on two smart network hubs. One hub will interconnect 200-area Ethernets; the other hub will interconnect 300-area Ethernets. These two hubs will be interconnected and attached to the Laboratory-wide FDDI network with a separate FDDI network (see Figure 2). Fiber-optic transceivers will connect divisional local area networks to this cable plant. To discuss this network, call Tim Kuhfuss at extension 2-4360.

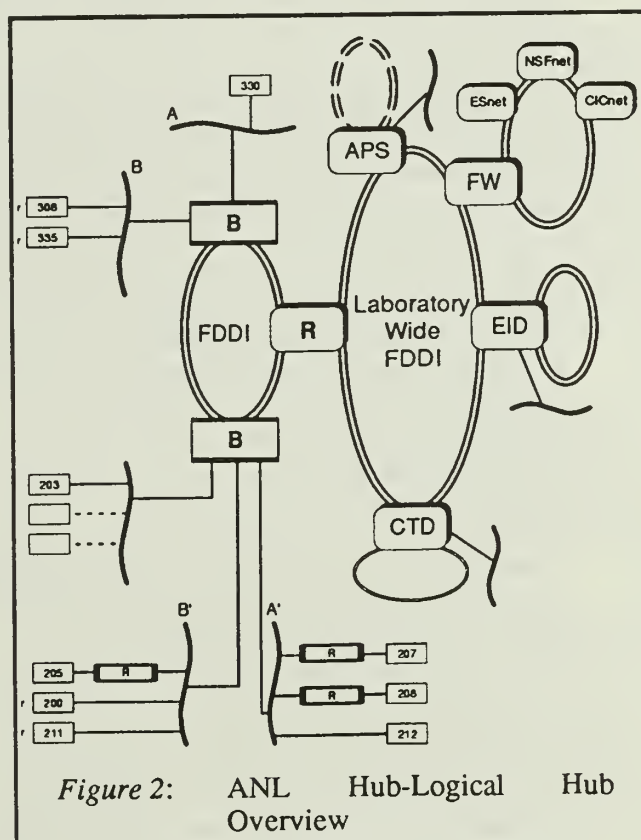


Figure 2: ANL Hub-Logical Hub Overview



### **TCP/IP TERMINAL SERVER CONNECTION TIME-OUT REMOVED**

In response to user requests, CTD has disabled the time-out characteristic of the central Transmission Control Protocol/Internet Protocol (TCP/IP) terminal server, which is available through the dial-up access numbers 2-5588 and 2-4726. This terminal server allows users on line-by-line terminals to access all ANL TCP/IP networks.

The terminal server will no longer time out and drop a connection when in an active session or in an idle state. Because a limited number of ports are available, users should not camp out on a port. Doing so may prevent other users from accessing the terminal server.

### **NEW ADDITIONS TO BITNET UNIVERSITY NETWORK**

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,440 computers at over 1,230 sites. Since the last *Newsletter* article in June 1992, the following universities and organizations have joined BITnet:

American Psychological Society--Washington, DC  
American University--Cairo, Egypt  
Dendalk Community College--Baltimore  
Korean Telecommunications Research Center--Seoul  
New York State Division of Budget--Albany  
University of Bahrain  
University of Bari--Italy  
University of Texas at Brownsville

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the CTD VAX cluster, or MVS Wylbur):

**HELP BITNET NODES**

### **BITS & BYTES**

#### **FORTRAN G1 COMPILER TO BE PHASED OUT**

During FY1993, CTD will phase out the IBM Fortran G1 Compiler on both MVS and VM. Fortran G1 costs the Laboratory \$1,176 per year. The VS Fortran compiler has superseded this compiler. The VS Fortran compiler offers basic Fortran users several advantages over the Fortran G1 compiler. VS Fortran has an interactive debugger, the ability to use the extended memory of MVS/XA, and options for parallelizing codes to use multiple processors. Fortran G1 users should modify their Fortran compilations jobs by changing

```
// EXEC FGIxxx
```

to

```
// EXEC FORTVxxx
```

Users with questions or concerns about the removal of Fortran G1 should contact the User Services consultants at extension 2-5405.

#### **RATE CHANGED FOR HEWLETT-PACKARD POSTSCRIPT PRINTER**

CTD has acquired a networked PostScript printer for public use. The Hewlett-Packard (HP) LaserJet III SI printer can print 17 pages per minute with a duty cycle of 50,000 pages per month. The charge rate is \$0.18 per page. This printer is located in Building 221, Room A-134. It is available as printer queue ANLBWP1 on VAX node ANLCV1 or as the entry anlbpw1 in the /etc/printcap file on Unix systems. Computer Operations personnel distribute the output to bins in that room according to the distribution code on the print job.

#### **RECENTLY UPDATED AND PUBLISHED DOCUMENTS**

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or

through the mail (by calling extension 2-5405 and requesting a copy):

### Computing and Telecommunications Documents

*ANL Site Response for the DOE FY1994 Information Resources Management Long-Range Plan (ANL/TM 500)* is one of many contributions to the DOE information technology resources long-range planning process. It provides data on these resources over an eight year period consisting of the base year (FY1991), the current year (FY1992), the budget year (FY1993), the plan year (FY1994), and the out years (FY1995-FY1998). This document consists of five parts: "Site Overview," "Software Plans," "Computing Resources Plan," "Telecommunications Plan," and "Printing and Publishing Plan."

The *Reference Card for Using the Online Materials CATalog through CICS* describes the Materials CATalog and how to use it through the Customer Information Control System (CICS). This *Reference Card* contains a section on accessing the online catalog through CICS (that is, logging on and off procedures from different networks) and instructions on seven options available to the user: responding to prompts, identifying a catalog code, searching for an item, requesting an expanded item description, scrolling through the catalog, printing a catalog listing, and exiting from the catalog.

### Other Vendor Documents

*Data Physician Plus! Computer Virus Protection System* (Version 3.1A) is a document and a diskette with two kinds of virus scanning programs: RESSCAN (a memory-resident program to scan for viruses) and VirHUNT (a disk-resident program to identify/remove viruses). You can use these programs with IBM PCs; IBM XTs; IBM ATs; or compatibles having a flexible disk drive, 256K available RAM, and DOS 2.0 or higher. This version supersedes Version 3.0C and Version 3.0D.

*Disinfectant v2.9* is a 3 1/2-inch diskette for the Apple Macintosh computers that can detect and cure the following viruses: Scores, nVIR, INIT 29, ANTI, MacMag, WDEF, ZUC, MDEF, Frankie, CDEF, MBDF, INIT 1984, CODE 252, and T4.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD JULY 7, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

**CTD Reorganization.** Mike Boxberger (Computing and Telecommunications) reported on the reorganization and movement of CTD Operations, under Ron Teunis. Downsizing and reductions are expected as the Cray goes away, but an attempt will be made to handle this situation through normal retirements, attrition, and not filling currently budgeted positions. Under Laboratory management guidance, CTD will probably not have a research element or be the primary source of computing cycles for the programmatic Divisions, but the Division will be organized along functional lines. These functions are likely to include DOE coordination, assistance for MIS/Administrative computing, production management and networking management.

**Cray Shutdown.** Mike continued with a discussion of the planning for the Cray shutdown. Plans are to notify Cray Research, Inc., before August 1 of the plans to shut down the XMP. It will then be listed for excess/surplus. There is still an obligation for the added memory, and no decision has been made yet on how this obligation will be handled (lump-sum payment or continued installment payments). CTD is looking for someone to pick up the XMP with the memory.

To handle the attached disks and provide a /n2-type storage capability, a Sun SPARCstation 2 (which will become a SPARCstation 10) has been ordered and the Andrew File System will be employed. Other issues related to the Cray shutdown and its effect on services are still under study.

**CIAC Meeting Announcement.** Jean Troyer (Computing and Telecommunications) announced a workshop on computer viruses to be held July 21 and 22. The first day and a half is more detailed and for the system administrators dealing with these issues directly. The second day is an overview for those involved with management of such systems.



**Andrew File System.** Doug Engert (Computing and Telecommunications) reported on the Andrew File System (AFS), the method by which the CTD disk pool will be made available for lab-wide use. Once the Cray is shut down, the ability to share or store large files in a secure, accessible manner through the /n2 file system will disappear. The AFS provides a means for increased security, better network performance, improved administration, offsite access for collaboration, and a consistent file system view for users. It is rapidly becoming the *de facto* standard for these needs.

For security, a server and a backup are protected in secured locations, and one or the other must be operating 24 hours a day to keep the system functional. Two Sun IPCs will be used for this purpose. The /n2 file system will be moved to another Sun server with about ten gigabytes of disk space. Client AFS software will be available to the laboratory through a site-wide license agreement. For those not running the AFS client software, an NFS/AFS translator will be available.

**PC LAN Connectivity Overview.** Jim Regula (Computing and Telecommunications) discussed recent considerations on PC LAN connectivity within the laboratory. Over the long term, CTD will be looking to OSI and GOSIP compatibility, but for the near term, TCP/IP will be the major connectivity protocol. CTD has a "testbed" PC LAN with a variety of software and hardware to study the interaction of the different products available and how to provide inter- connectivity. CTD has studied Microsoft LAN Manager 2.1 TCP/IP Utilities, Pathworks with PCP/IP, Novell NetWare, Novell Lan Workplace for DOS, and tn3270/LPR, and can provide guidance on how these will interact across the network and between products.

**FDDI Implementation Status.** Tim Kuhfuss (Computing and Telecommunications) reported on the status of the FDDI installation. The planning documents and review stages have been completed and plans are moving ahead. The cost of adding an FDDI/Ethernet board to a divisional Cisco router is fairly high (\$24,000). This addition would give 100-Mbit service across the FDDI network. Current technology allows the use of the cable and new smart, fast, multibackbone hubs to offer an inexpensive means of getting 10 Mbits, less than the 100 Mbits of FDDI but more than the 1 Mbits of LANmark. CTD has proposed the central deploy-

ment of these hubs to provide the divisions with this intermediate service. This deployment will provide a cost savings but efficiently use the installed fiber. It is easily reconfigured and integrated into the Lab-wide network. Its robust topology allows similar LANs to be repeated, closely tied LANs to be bridged, and separate LANs to be routed.

**Modem Pool Timeouts.** Bob McMahon (Computing and Telecommunications) reported that additional modems have been added to the high-speed-modem pool. Since the additions, no busy lines have been encountered. In response to the CUG suggestions, the plan is to add more modems when needed, if money is available to purchase them, rather than to introduce inactivity time-outs, which may actually end a session where work is taking place because the time-out can be based on looking at only one of several modes of activity measures.

**CPC Meeting Report.** Pat Garner (Reactor Analysis) reported on the CPC meeting. Many of the topics have been covered in the discussions of previous topics at this meeting. Several issues involved the Software Management Program. Drafts of a *Statement of Compliance* and an *ANL Policy Statement on Software Management* were under review, and a *Software Management Guide* is being prepared. Divisions will be asked to appoint Software Management Program Representatives. There was a recent inspection of computer protection at ANL-W by DOE, and everything went well. This year's inspection at ANL-E was cancelled because of the excellent report from last year's review.

The Computer Users Group normally meets on the first Tuesday of each month at 3:00 p.m. in Building 221, Room A-216. Contact Pat Garner (extension 2-4872) or Ken Miles (extension 2-3095) to be placed on the distribution list for meeting announcements or for additional information.

The CUG meeting adjourned at 4:45 p.m.

Ken Miles, CUG Secretary



# WORKLOAD STATISTICS (MAY 29 THROUGH JUNE 29, 1992)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,210              | 1,214        | 391                 |
| Wylbur      | 1,543              | 1,537        | 277                 |
| MVS TSO     | 57                 | 57           | 20                  |
| CICS        | 2,299              | 2,317        | 234                 |
| MVS Batch   | 2,299              | 2,317        | 580                 |
| VAX/VMS     | 844                | 859          | 183                 |
| Cray        | 360                | 365          | 83                  |
| Unix        | 146                | 162          | *                   |
| All Systems | 2,299              | 2,317        | 916                 |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |        |         |        | SESSION    | CPU        |
|--------------------|--------------------------------|--------|---------|--------|------------|------------|
|                    | PRIME                          | NIGHT  | WEEKEND | TOTAL  | TIME (HRS) | TIME (HRS) |
| <b>INTERACTIVE</b> |                                |        |         |        |            |            |
| CMS                | 11,003                         | 3,179  | 2,505   | 16,687 | 44,264     | 99.11      |
| Wylbur             | 4,982                          | 201    | 194     | 5,377  | 5,648      | 3.43       |
| MVS TSO            | 714                            | 22     | 0       | 736    | 559        | 2.27       |
| CICS               | *                              | *      | *       | *      | *          | *          |
| VAX/VMS            | 8,052                          | 4,754  | 3,652   | 16,458 | 26,220     | 109.93     |
| Cray               | 164                            | 17     | 2       | 183    | 745        | 156.21     |
| <b>IBM BATCH</b>   |                                |        |         |        |            |            |
| Class U            | 7,728                          | 1,964  | 1,159   | 10,851 | **         | 19.60      |
| Class W            | 13,350                         | 3,785  | 632     | 4,417  | **         | 172.03     |
| Class X            | 2                              | 776    | 15      | 793    | **         | 59.00      |
| Class Y            | 0                              | 0      | 296     | 296    | **         | 18.83      |
| Nonmain            | 22,214                         | 4,823  | 1,856   | 28,893 | **         | 0.00       |
| Total              | 43,294                         | 11,348 | 3,958   | 42,250 | **         | 269.46     |
| <b>CRAY BATCH</b>  |                                |        |         |        |            |            |
| u                  | 164                            | 17     | 2       | 183    | **         | 0.20       |
| w                  | 231                            | 38     | 29      | 298    | **         | 9.47       |
| x                  | 172                            | 0      | 12      | 184    | **         | 0.61       |
| y                  | 1,309                          | 130    | 150     | 1,589  | **         | 21.23      |
| Total              | 1,876                          | 185    | 193     | 2,254  | **         | 31.51      |
| <b>VMS BATCH</b>   |                                |        |         |        |            |            |
| W BATCH            | 249                            | 338    | 89      | 676    | **         | 13.26      |
| X BATCH            | 0                              | 2      | 3       | 5      | **         | 2.04       |
| Y BATCH            | 0                              | 0      | 13      | 13     | **         | 1.98       |
| Total              | 249                            | 340    | 105     | 694    | **         | 17.28      |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               |            |
| Local                       | 51,882,650 |
| Remote                      | 41,509,921 |
| Fiche                       | 40,282,445 |
| Tape Mounts                 | 7,148      |
| Microfiche Developed        | 5,125      |
| Microfiche Frames Developed | 902,109    |

## GRAPHICS

|                      | # OF JOBS | # OF FRAMES |
|----------------------|-----------|-------------|
| CalComp Jobs         | 180       | 109***      |
| Matrix 35mm Color    | 119       | 150         |
| Seiko (Paper)        | 351       | 794         |
| Seiko (Transparency) | 152       | 345         |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 23,741 |
| Round Tapes Saved           | 74     |
| Round Tapes Released        | 180    |
| Cartridges Saved            | 1,520  |
| Cartridges Released         | 1,177  |
| Datasets Exported to Tape   | 905    |
| Datasets Imported from Tape | 258    |

\* not available

\*\* not applicable

\*\*\* The frame count is available only from jobs queued through the VAX cluster.

# AVAILABILITY STATISTICS, BY MACHINE (MAY 29 THROUGH JUNE 29, 1992)

|                                    | Monthly<br>Totals | Hardware | Scheduled<br>Software | Other | Hardware | Unscheduled<br>Software | Other |
|------------------------------------|-------------------|----------|-----------------------|-------|----------|-------------------------|-------|
| CMS                                |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| WYLBUR                             |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 6.00              | 0.00     | 4.00                  | 0.00  | 1.00     | 1.00                    | 0.00  |
| Hrs Unavailable                    | 3.00              | 0.00     | 2.63                  | 0.00  | 0.26     | 0.10                    | 0.00  |
| MTF/Unscheduled                    | 382.50            |          |                       |       | 765.00   | 765.00                  |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| MVS TSO                            |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 5.00              | 0.00     | 4.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 2.90              | 0.00     | 2.63                  | 0.00  | 0.26     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 765.10            |          |                       |       | 765.10   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| JES3                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 5.00              | 0.00     | 4.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 2.73              | 0.00     | 2.50                  | 0.00  | 0.23     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 765.26            |          |                       |       | 765.26   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| CICS                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| VAX/VMS (VAX 8700)                 |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 9.00              | 2.00     | 6.00                  | 0.00  | 1.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 11.71             | 3.28     | 7.75                  | 0.00  | 0.68     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 756.28            |          |                       |       | 756.28   |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.00              | 0.00     | 0.00                  | 0.00  | 0.00     | 0.00                    | 0.00  |
| MTF/Unscheduled                    |                   |          |                       |       |          |                         |       |
| VAX/VMS (VAX 6410)                 |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 14.00             | 2.00     | 8.00                  | 0.00  | 3.00     | 1.00                    | 0.00  |
| Hrs Unavailable                    | 13.21             | 3.28     | 8.46                  | 0.00  | 1.18     | 0.28                    | 0.00  |
| MTF/Unscheduled                    | 188.69            |          |                       |       | 251.59   | 754.78                  |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 2.00              | 0.00     | 0.00                  | 0.00  | 2.00     | 0.00                    | 0.00  |
| Hrs Unavailable                    | 0.78              | 0.00     | 0.00                  | 0.00  | 0.78     | 0.00                    | 0.00  |
| MTF/Unscheduled                    | 131.60            |          |                       |       | 131.60   |                         |       |
| CRAY                               |                   |          |                       |       |          |                         |       |
| All Shifts                         |                   |          |                       |       |          |                         |       |
| Interruptions                      | 17.00             | 5.00     | 0.00                  | 0.00  | 10.00    | 0.00                    | 2.00  |
| Hrs Unavailable                    | 43.56             | 15.20    | 0.00                  | 0.00  | 26.60    | 0.00                    | 1.76  |
| MTF/Unscheduled                    | 60.36             |          |                       |       | 72.44    |                         |       |
| Monday-Friday, 7:00 a.m.-7:00 p.m. |                   |          |                       |       |          |                         |       |
| Interruptions                      | 11.00             | 0.00     | 0.00                  | 0.00  | 9.00     | 0.00                    | 2.00  |
| Hrs Unavailable                    | 27.70             | 0.00     | 0.00                  | 0.00  | 25.93    | 0.00                    | 1.76  |
| MTF/Unscheduled                    | 21.48             |          |                       |       | 26.25    |                         |       |

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (MAY 29 THROUGH JUNE 29, 1992)

| CC                                             | CCNAME                            | IBM      | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|------------------------------------------------|-----------------------------------|----------|----------|----------|----------|------------|-----------|
| ADVANCED PHOTON SOURCE                         |                                   |          |          |          |          |            |           |
| 131                                            | ACCELERATOR SYS DIV               | \$70     | \$10     | \$0      | \$22     | \$144      | \$245     |
| 132                                            | EXP FACIL DIV                     | \$80     | \$0      | \$0      | \$1      | \$118      | \$199     |
| 133                                            | APS PROJECT OFFICE                | \$0      | \$0      | \$0      | \$50     | \$0        | \$50      |
| 272                                            | ADVANCED PHOTON SOURCE            | \$77     | \$0      | \$0      | \$155    | \$30       | \$262     |
| 340                                            | APS ASD MANAGEMENT                | \$0      | \$0      | \$0      | \$0      | \$10,340   | \$10,340  |
| 341                                            | APS ACCELERATOR PHYSICS           | \$271    | \$1,847  | \$0      | \$5      | \$55       | \$2,178   |
| 342                                            | APS DIAGNOSTICS                   | \$0      | \$48     | \$0      | \$11     | \$390      | \$452     |
| 343                                            | APS LINAC                         | \$0      | \$109    | \$0      | \$0      | \$0        | \$109     |
| 344                                            | APS RF                            | \$3      | \$61     | \$0      | \$13     | \$433      | \$510     |
| 345                                            | APS VACUUM/MECHANICAL ENG.        | \$10     | \$2,296  | \$264    | \$51     | \$187      | \$2,808   |
| 347                                            | APS CONTROLS                      | \$55     | \$45     | \$0      | \$1      | \$50       | \$150     |
| 348                                            | APS MAGNETS                       | \$62     | \$42     | \$0      | \$32     | \$119      | \$255     |
| 349                                            | APS POWER SUPPLIES                | \$31     | \$0      | \$0      | \$0      | \$0        | \$31      |
| 350                                            | APS DIVISION MANAGEMENT           | \$0      | \$10     | \$0      | \$0      | \$0        | \$10      |
| 351                                            | APS INSERTION DEVICES             | \$36     | \$832    | \$0      | \$8      | \$495      | \$1,371   |
| 352                                            | APS ENGINEERED SYSTEMS            | \$44     | \$1,354  | \$0      | \$25     | \$445      | \$1,868   |
| 353                                            | APS BEAM LINE INSTRUMENTATION     | \$16     | \$1,767  | \$0      | \$49     | \$1,661    | \$3,493   |
| 360                                            | APS CONVENTIONAL FACILITIES       | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 361                                            | APS PROJECT DIRECTION             | \$60     | \$20     | \$0      | \$344    | \$123      | \$546     |
| SUBTOTAL                                       |                                   | \$823    | \$8,441  | \$264    | \$765    | \$14,589   | \$24,883  |
| ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH |                                   |          |          |          |          |            |           |
| 110                                            | BIO & MED RES DIV                 | \$501    | \$2,737  | \$22     | \$981    | \$2,378    | \$6,619   |
| 125                                            | TECHNOLOGY TRANSFER CENTER        | \$74     | \$9      | \$0      | \$1      | \$132      | \$217     |
| 149                                            | ENVIRONMENTAL RESEARCH DIV        | \$1,301  | \$260    | \$185    | \$745    | \$1,089    | \$3,580   |
| 155                                            | ENERGY SYSTEMS DIVISION           | \$2,070  | \$3,341  | \$274    | \$1,120  | \$1,082    | \$7,887   |
| 165                                            | ENV ASSESS & INFO SCI DIV         | \$5,911  | \$3,893  | \$337    | \$357    | \$1,870    | \$12,369  |
| 274                                            | ENER/ENV/BIO RES PROG ADM         | \$124    | \$0      | \$0      | \$1      | \$267      | \$391     |
| SUBTOTAL                                       |                                   | \$9,981  | \$10,241 | \$818    | \$3,205  | \$6,818    | \$31,063  |
| ENGINEERING RESEARCH                           |                                   |          |          |          |          |            |           |
| 102                                            | EBR-II PROJECT-ANL WEST           | \$2,781  | \$16     | \$509    | \$2,311  | \$191      | \$5,808   |
| 104                                            | FUELS AND PROCESSES DIVISION      | \$2,430  | \$191    | \$47     | \$487    | \$1,200    | \$4,355   |
| 107                                            | CHEMICAL TECHNOLOGY DIVISION      | \$577    | \$225    | \$274    | \$459    | \$633      | \$2,168   |
| 112                                            | REACTOR ENGINEERING DIVISION      | \$2,197  | \$1,113  | \$983    | \$974    | \$2,012    | \$7,278   |
| 114                                            | MATLS & COMP TECH DIV             | \$8,752  | \$2,627  | \$457    | \$842    | \$3,825    | \$16,504  |
| 115                                            | ENGINEERING PHYSICS DIVISION      | \$3,057  | \$1,420  | \$639    | \$2,229  | \$1,642    | \$8,987   |
| 116                                            | REACTOR ANALYSIS DIVISION         | \$33,642 | \$2,755  | \$11,084 | \$7,739  | \$8,753    | \$63,973  |
| 117                                            | ENGINEERING PHYSICS ANL-WEST      | \$1,941  | \$414    | \$537    | \$270    | \$334      | \$3,495   |
| 118                                            | FUEL CYCLE DIVISION               | \$1,736  | \$3,302  | \$6      | \$206    | \$329      | \$5,598   |
| 171                                            | ENG RES PROG DIR                  | \$6      | \$0      | \$0      | \$0      | \$106      | \$113     |
| 197                                            | SPECIAL PROJECTS OFFICE           | \$294    | \$2      | \$0      | \$33     | \$196      | \$524     |
| 211                                            | ENGR PHYS DIV - DESIGN ENGR       | \$23     | \$0      | \$0      | \$20     | \$136      | \$179     |
| 269                                            | ANALYTICAL CHEMISTRY LABORATORY   | \$97     | \$4      | \$0      | \$4      | \$116      | \$221     |
| 271                                            | ENG RES PROG ADMIN                | \$202    | \$0      | \$0      | \$38     | \$369      | \$608     |
| SUBTOTAL                                       |                                   | \$57,756 | \$12,069 | \$14,535 | \$15,610 | \$19,842   | \$119,812 |
| PHYSICAL RESEARCH                              |                                   |          |          |          |          |            |           |
| 105                                            | MATERIALS SCIENCE DIVISION        | \$504    | \$2,366  | \$304    | \$865    | \$696      | \$4,736   |
| 109                                            | PHYSICS DIV                       | \$-3,422 | \$801    | \$23     | \$872    | \$946      | \$-779    |
| 120                                            | CHEMISTRY DIV                     | \$1,090  | \$2,483  | \$2,570  | \$426    | \$1,649    | \$8,219   |
| 136                                            | INT PULSE NEUT SOURCE PROG        | \$-257   | \$90     | \$35     | \$274    | \$241      | \$383     |
| 137                                            | HIGH ENERGY PHYSICS DIV           | \$541    | \$1,692  | \$333    | \$927    | \$825      | \$4,319   |
| 139                                            | DIV OF EDUCATIONAL PROGRAMS       | \$455    | \$0      | \$0      | \$177    | \$168      | \$800     |
| 145                                            | MATHAMATICS & COMPUTER SCI DIV    | \$104    | \$58     | \$895    | \$52     | \$1,241    | \$2,350   |
| 146                                            | CTD DIV - SCI APPL & RES          | \$46     | \$259    | \$21     | \$77     | \$2,078    | \$2,482   |
| 273                                            | PHYSICAL RESEARCH PROGRAM ADMIN   | \$54     | \$10     | \$0      | \$23     | \$114      | \$202     |
| SUBTOTAL                                       |                                   | \$-884   | \$7,760  | \$4,182  | \$3,694  | \$7,957    | \$22,709  |
| EXTERNAL                                       |                                   |          |          |          |          |            |           |
| 751                                            | FERMI NATIONAL LABORATORY         | \$500    | \$0      | \$0      | \$989    | \$556      | \$2,044   |
| 752                                            | NAVY                              | \$8,701  | \$0      | \$0      | \$873    | \$3,975    | \$13,549  |
| 753                                            | MORGANTOWN ENERGY TECH CENTER     | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 754                                            | DEPARTMENT OF ENERGY AT ANL       | \$0      | \$9      | \$0      | \$61     | \$0        | \$70      |
| 760                                            | ABBOTT LABORATORIES               | \$3      | \$0      | \$52     | \$0      | \$0        | \$55      |
| 777                                            | UNIVERSITY OF CHICAGO AT ANL      | \$15     | \$0      | \$0      | \$151    | \$0        | \$166     |
| 778                                            | ARGONNE CREDIT UNION              | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 779                                            | UNIVERSITY OF ILLINOIS AT CHICAGO | \$10     | \$0      | \$0      | \$0      | \$0        | \$10      |
| 780                                            | NEW BRUNSWICK LABORATORY          | \$3      | \$28     | \$0      | \$0      | \$0        | \$31      |
| 782                                            | PACKER ENGINEERING                | \$18     | \$0      | \$0      | \$0      | \$0        | \$18      |
| 783                                            | WEST VALLEY NUCLEAR SERVICES CO   | \$0      | \$54     | \$179    | \$0      | \$0        | \$233     |
| 784                                            | SSC LABORATORY                    | \$0      | \$0      | \$0      | \$0      | \$20       | \$20      |
| 790                                            | GRUMANN AEROSPACE                 | \$0      | \$0      | \$33     | \$0      | \$277      | \$310     |
| 792                                            | NATIONAL ACADEMY OF SCIENCES      | \$0      | \$0      | \$0      | \$0      | \$0        | \$0       |
| SUBTOTAL                                       |                                   | \$9,269  | \$90     | \$264    | \$2,074  | \$4,828    | \$16,526  |



| CC  | CCNAME                               | IBM       | VAX        | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|-----|--------------------------------------|-----------|------------|----------|----------|------------|-----------|
|     |                                      |           | OPERATIONS |          |          |            |           |
| 143 | SUPP SERV DIV - ELEC DEPT            | \$305     | \$3        | \$0      | \$307    | \$329      | \$943     |
| 148 | HUMAN RESOURCES-MEDICAL DEPT         | \$4,008   | \$0        | \$0      | \$298    | \$796      | \$5,102   |
| 150 | SUPPORT SERV DIV - SPEC MATLS        | \$269     | \$0        | \$0      | \$41     | \$205      | \$514     |
| 161 | IPD-TECH INFO SERV                   | \$431     | \$35,976   | \$0      | \$5,476  | \$641      | \$42,513  |
| 201 | OFFICE OF THE DIRECTOR               | \$123     | \$0        | \$0      | \$131    | \$107      | \$361     |
| 202 | OFC OF CHIEF OPER OFCR               | \$20      | \$0        | \$0      | \$151    | \$112      | \$283     |
| 210 | SUPP SERV DIV - CENT SHOPS           | \$357     | \$0        | \$0      | \$92     | \$566      | \$1,015   |
| 216 | SUPPORT SERVICES DIVISION            | \$93      | \$0        | \$0      | \$23     | \$131      | \$247     |
| 222 | PLANT FAC & SERV-LODGING FAC         | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 232 | SUPPORT SERV DIV - SECURITY          | \$345     | \$0        | \$0      | \$5      | \$188      | \$538     |
| 234 | ESH DIV-HEALTH PHY                   | \$353     | \$372      | \$0      | \$314    | \$235      | \$1,274   |
| 235 | ESH DIV                              | \$1,476   | \$58       | \$0      | \$294    | \$406      | \$2,234   |
| 236 | ESH DIV-FIRE DEPT                    | \$7       | \$0        | \$0      | \$0      | \$101      | \$108     |
| 245 | COMPUTING AND TELECOM DIV            | \$23,546  | \$0        | \$0      | \$3,917  | \$2,642    | \$30,106  |
| 247 | COMP & TEL DIV - COM SERV            | \$2,774   | \$0        | \$0      | \$241    | \$2,026    | \$5,041   |
| 260 | IPD-MEDIA SERV DEPT                  | \$215     | \$1,561    | \$0      | \$56     | \$354      | \$2,186   |
| 265 | IPD-TECH COM SERV                    | \$81      | \$0        | \$0      | \$1      | \$12       | \$94      |
| 275 | OFFICE OF PUBLIC AFFAIRS             | \$884     | \$0        | \$0      | \$77     | \$194      | \$1,155   |
| 276 | OFC PUB AF - MOTN PIC UNIT           | \$46      | \$0        | \$0      | \$3      | \$15       | \$64      |
| 288 | INF & PUBL DIV                       | \$141     | \$13       | \$0      | \$1      | \$107      | \$263     |
| 296 | TELECOM COST/RECOVERY                | \$3       | \$0        | \$0      | \$65     | \$0        | \$65      |
| 315 | SUPP SERV DIV-MATLS & SERV           | \$4,708   | \$0        | \$0      | \$1,349  | \$855      | \$6,912   |
| 316 | PLANT FAC & SERV-VEH MAINT           | \$0       | \$0        | \$0      | \$0      | \$173      | \$173     |
| 317 | PLANT FAC & SERV-DRIV&RIG SERV       | \$32      | \$0        | \$0      | \$1      | \$100      | \$133     |
| 319 | SUPP SERV DIV-TRAVEL OFC             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 322 | SUPP SERV DIV-PROCUREMENT            | \$190     | \$1        | \$0      | \$71     | \$378      | \$639     |
| 331 | EEO-INDIRECT                         | \$3       | \$0        | \$0      | \$7      | \$10       | \$10      |
| 333 | ENVIR SAFE HEALTH & QA OVERSIGH      | \$1,118   | \$90       | \$0      | \$153    | \$530      | \$1,890   |
| 336 | SUPP SERV DIV - INSPECTION           | \$18      | \$0        | \$0      | \$0      | \$2        | \$20      |
| 400 | OFC OF CHIEF FIN OFFICER             | \$45,717  | \$0        | \$0      | \$2,911  | \$10,535   | \$59,163  |
| 401 | ACCOUNTING                           | \$0       | \$0        | \$0      | \$11     | \$0        | \$11      |
| 403 | BUDGET OFFICE                        | \$3       | \$0        | \$0      | \$0      | \$0        | \$3       |
| 410 | HUMAN RESOURCES DEPARTMENT           | \$20,488  | \$10       | \$0      | \$1,042  | \$3,567    | \$25,107  |
| 412 | AFFIRM ACTION PROGRAM                | \$69      | \$0        | \$0      | \$45     | \$101      | \$214     |
| 501 | PLANT FAC & SERV-BLDG MAINT          | \$192     | \$0        | \$0      | \$52     | \$280      | \$525     |
| 502 | PLANT FAC & SERV-INSTALLATIONS       | \$27      | \$0        | \$0      | \$3      | \$100      | \$130     |
| 503 | PLANT FAC & SERV-GROUNDS             | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 504 | PLANT FAC & SERV-CUSTODIAL           | \$3       | \$0        | \$0      | \$0      | \$100      | \$104     |
| 505 | PLANT FAC & SERV-WASTE MGMT OP       | \$57      | \$0        | \$0      | \$81     | \$100      | \$238     |
| 506 | PLANT FAC & SERV-PLANT MGR OFC       | \$831     | \$0        | \$0      | \$56     | \$439      | \$1,326   |
| 509 | PLANT FAC & SERV-OPERATION DIN       | \$0       | \$0        | \$0      | \$0      | \$0        | \$0       |
| 510 | PLANT FAC & SERV-UTILITY SYST        | \$0       | \$0        | \$0      | \$2      | \$100      | \$102     |
| 512 | PLANT FAC & SERV-FAC PLNG/ENG        | \$532     | \$72       | \$0      | \$54     | \$167      | \$825     |
| 530 | SITE MGRS OFC-ANL WEST               | \$124     | \$0        | \$0      | \$3      | \$101      | \$228     |
| 531 | HUMAN RESOURCES-AW                   | \$320     | \$0        | \$0      | \$183    | \$100      | \$603     |
| 532 | SPECIAL MATLS-ANL WEST               | \$743     | \$0        | \$0      | \$140    | \$173      | \$1,056   |
| 533 | ACCOUNTING-ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 534 | PURCHASING-ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 535 | SECURITY - ANL WEST                  | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 536 | ENVIRONMENT, SAFETY & HEALTH-AW      | \$6       | \$0        | \$0      | \$0      | \$100      | \$106     |
| 537 | INFORMATION SERVICE-ANL WEST         | \$0       | \$0        | \$0      | \$0      | \$100      | \$100     |
| 538 | SUPPLY-AW                            | \$106     | \$0        | \$0      | \$9      | \$100      | \$215     |
| 548 | ANL WEST GENERAL EXPENSE             | \$206     | \$0        | \$0      | \$52     | \$0        | \$258     |
| 550 | COMPUTER APPL & SERV - ANL-W         | \$97      | \$0        | \$0      | \$15     | \$101      | \$213     |
| 554 | MACHINE SHOP-ANL WEST                | \$33      | \$0        | \$0      | \$4      | \$100      | \$137     |
| 556 | SITE ENGRG-ANL WEST                  | \$107     | \$0        | \$0      | \$23     | \$100      | \$230     |
| 557 | PLANT SERVICES-AW-SERVICE REQ        | \$119     | \$1        | \$0      | \$13     | \$100      | \$233     |
| 558 | PLANT SERVICES-AW-FUNCTION           | \$3       | \$0        | \$0      | \$0      | \$0        | \$3       |
| 561 | OFC OF QUALITY ASSURANCE - AW        | \$10      | \$0        | \$0      | \$0      | \$101      | \$111     |
| 570 | ENVIRON HEALTH SAFETY QUAL ASSURANCE | \$78      | \$0        | \$0      | \$1      | \$0        | \$79      |
|     | SUBTOTAL                             | \$111,415 | \$38,157   | \$0      | \$17,772 | \$28,471   | \$195,815 |
|     | TOTAL                                | \$188,359 | \$76,759   | \$20,064 | \$43,121 | \$82,505   | \$410,808 |

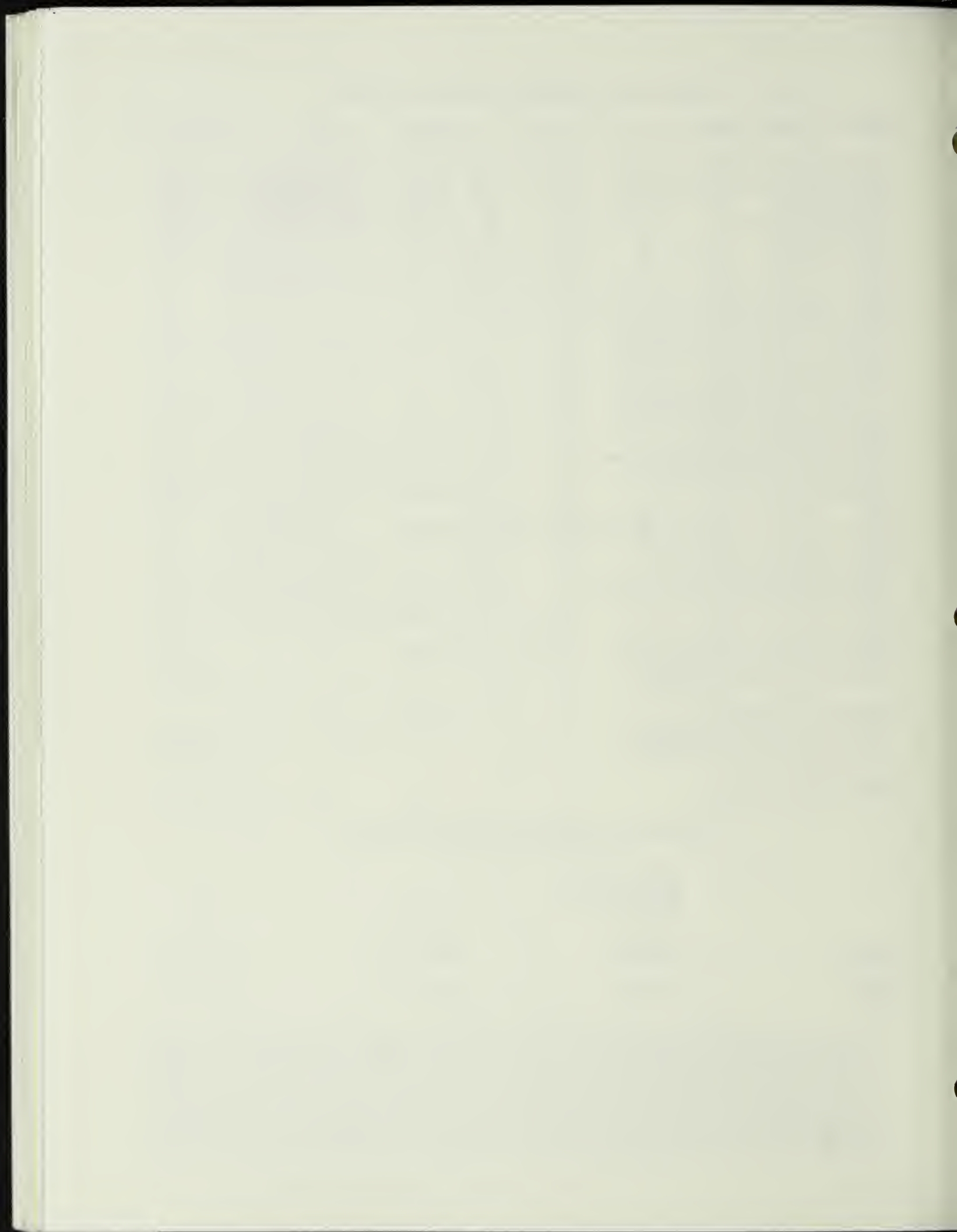
## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance                                                     | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|--------------------------------------------------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center                                                      | 2-5421                                | 8-708-252-5421    | 252-5421                   |
| Current System Status Recorded Message                                         | 2-5466                                | 8-708-252-5466    | 252-5466                   |
| User Consultant                                                                | 2-5405                                | 8-708-252-5405    | 252-5405                   |
| Documentation                                                                  | 2-5405                                | 8-708-252-5405    | 252-5405                   |
| Computer Operations                                                            | 2-5421                                | 8-708-252-5421    | 252-5421                   |
| VM/SP Operator                                                                 | 2-8442                                | 8-708-252-8442    | 252-8442                   |
| RADS Maintenance                                                               | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service                                                      | 1-800-332-1478 (only within Illinois) |                   |                            |
| <b>CICS, CMS, Wylbur, and TSO Interactive Computing Services</b>               |                                       |                   |                            |
| IBM 3270 Protocol Converter                                                    |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-3270                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-3270                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-3219                   |
| X.25 Terminal Multiplexor                                                      |                                       |                   |                            |
| 300 to 19.2K Bits Per Second(Onsite)                                           | 2-2525                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-2525                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-2519                   |
| IBM 3174 Cluster Controller                                                    | 2-3174                                | n.a.              | n.a.                       |
| 1,200 Bits Per Second Full-Duplex<br>(Bell 212 and Hayes Compatible Modems)    | 2-2212                                | n.a.              | 252-2212                   |
| 1,200 Bits Per Second Full-Duplex<br>(Vadic 3400 Compatible Modems)            | 2-7612                                | n.a.              | 252-7612                   |
| 300 Bits Per Second                                                            | 2-7603*                               | n.a.              | 252-7603*                  |
| * When using a 300 bits per second modem, you must use a capital "P" to logon. |                                       |                   |                            |
| <b>Batch Remote Job Entry Service</b>                                          |                                       |                   |                            |
| 2,000 or 2,400 Bits Per Second<br>(Bell 201A and 201C Compatible Modems)       | 2-7989                                | n.a.              | 252-7989                   |
| 4,800 Bits Per Second<br>(Bell 208B Compatible Modems)                         | 2-7573                                | n.a.              | 252-7573                   |
| <b>Central DEC VAX Cluster</b>                                                 |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-8700                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-8700                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-8745                   |
| <b>Argonne TCP/IP Network</b>                                                  |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-5588                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-5588                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-4726                   |
| <b>Argonne ESnet Dial-Up</b>                                                   |                                       |                   |                            |
| 300 to 19.2K Bits Per Second                                                   | 2-7920                                | n.a.              | 252-7920                   |

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

|                       | MVS JES3<br>Batch, UNICOS<br>Wylbur,<br>and TSO | VM/XA                        | VMS                          |
|-----------------------|-------------------------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00                    | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                                     | 00:00-24:00                  | 00:00-24:00                  |

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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Argonne National Laboratory  
Computing and Telecommunications Division  
August and September 1992

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering ten classes. For information about a class, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). To register for a class, see your Training Management System (TMS) representative. A copy of the "Enrollment Form" is on page 6 and a list of TMS representatives is on page 7 of the Human Resources *Program and Course Guide* (Summer 1992). Also, a copy of the "Enrollment Form" appears below. All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD will reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class. If necessary, CTD will schedule additional classes. If you cannot attend a class, please cancel your reservation at least *one week* before the class. Since the space in some classes is limited, there will be no refund for those who register for a charged class but do not attend.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

ENROLLMENT FORM

Instructions:

Photocopy this form, complete it, and give it to your TMS Representative.

Please enroll me in the following course(s):

Course number \_\_\_\_\_ Course name \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_ Badge \_\_\_\_\_

Division/Department \_\_\_\_\_ Building \_\_\_\_\_ Location \_\_\_\_\_ Phone \_\_\_\_\_

Division/Department Approval \_\_\_\_\_

Divisional Overhead Account \_\_\_\_\_  
(Required for select courses - see course description)

**USING UNIX WORKSTATIONS AND THE DISTRIBUTED QUEUING SYSTEM (DQS) FOR  
BATCH COMPUTING (COURSE #617)**

Goals: To learn to use DQS for submitting and managing batch jobs on Unix workstations.

Length of Class: One 3-hour lecture and one 2 1/2-hour lab

Date and Times: August 12, 1992 (Wednesday)  
9:00 a.m. to noon (Lecture)  
1:30 p.m. to 4:00 p.m. (Lab)

Location: Building 221, Room A-142

Instructors: Larry Rudsinski  
Louis Revor

Charge: \$25

**GETTING STARTED WITH THE ADVANCED VISUALIZATION SYSTEM (AVS) (COURSE  
#618)**

Goals: To learn how to set up and use AVS, how to create input files for AVS, and how to use the AVS module-network editor.

Length of Class: One 3-hour lecture and one 1-hour lab

Date and Times: August 14, 1992 (Friday)  
9:00 a.m. to noon (Lecture)  
1:30 p.m. to 4:00 p.m. (Lab)

Location: Building 221, Room A-142

Instructor: Andy Haas

Charge: \$25

**USING THE EMACS EDITOR IN UNIX (COURSE #616)**

Goals: To learn how to use the GNU Emacs editor (including the fundamentals of editing text, C code, Fortran code, and TeX documents). To learn how to compile under Emacs, to invoke shells, to edit the directory, to use mail, to use a single source file to produce man pages and TeX source, and to customize the editor.

Length of Class: One 3-hour lecture and one 2 1/2-hour lab

Date and Times: August 18, 1992 (Tuesday)  
9:00 a.m. to noon (Lecture)  
1:30 p.m. to 4:00 p.m. (Lab)

Location: Building 221, Room A-142

Instructor: Mike Gomberg

Charge: \$25

To register for a class, see your TMS representative.



## INTRODUCTION TO COMPUTING FACILITIES AND SERVICES (COURSE #293)

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: September 9, 1992 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336, Revision 2)  
*Recommended Documentation for Computer Users at ANL* (ANL/TM 379, Revision 3)  
*Guide to Telecommunications at ANL* (ANL/TM 422, Revision 1)

Instructor: Fred Moszur

Charge: none

## INTRODUCTION TO UNIX (COURSE #564)

Goals: To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.

Prerequisite: Working knowledge of Unix editor or concurrent enrollment in "Using the VI Editor in Unix" (Course #619) or "Using the EMACS Editor in Unix" (Course #616).

Length of Class: Two 4-hour lectures and labs

Dates and Times: Section 1: September 15, 1992 (Tuesday) and September 17, 1992 (Thursday)  
9:00 a.m. to 2:30 p.m. (Lecture and Lab) with 1 1/2 hour lunch break  
  
Section 2: September 21, 1992 (Monday) and September 23, 1992 (Wednesday)  
9:00 a.m. to 2:30 p.m. (Lecture and Lab) with 1 1/2 hour lunch break

Location: Building 221, Room A-142

Suggested Reading: *A Practical Guide to the Unix System* (0-8053-0243-3)

Instructors: Pete Bertoncini  
Steve Karlovsky

Charge: \$50

### USING THE VI EDITOR IN UNIX (COURSE #619)

Goals: To learn to use the vi interactive text editor effectively.

Length of Class: One 3-hour session

Date and Time: Section 1: September 11, 1992 (Friday), 9:00 a.m. to noon  
Section 2: September 11, 1992 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructor: Steve Karlovsky

Charge: \$25

### INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING (COURSE #288)

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

Length of Class: One 3-hour lecture with lab

Date and Time: September 16, 1992 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *SLAC Wylbur Tutorial*  
*OBS Wylbur Reference Manual*

Instructor: Mike Thommes

Charge: none

### INTRODUCTION TO VAX/VMS (COURSE #289)

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: September 18, 1992 (Friday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *VMS User's Manual (AA-LA98B-TE)*

Instructor: Dave Lifka

Charge: \$25

To register for a class, see your TMS representative.

## PROGRAMMING IN VAX/VMS (COURSE #286)

**Goals:** To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.

**Length of Class:** One 3-hour session

**Date and Time:** September 25, 1992 (Friday), 9:00 a.m. to noon

**Location:** Building 221, Room A-142

**Instructor:** Dave Lifka

**Charge:** \$25

## USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS (COURSE #273)

**Goals:** To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal capable of using the Hydra Protocol Converter. To learn to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.

**Length of Class:** Two 3-hour lectures with labs

**Dates and Time:** September 24, 1992 (Thursday), and September 28, 1992 (Monday)  
9:00 a.m. to noon

**Location:** Building 221, Room A-142

**Suggested Reading:** *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer (SC23-0368-0)*  
*CMS at ANL (ANL/TM 423, Revision 2)*

**Instructors:** Pete Bertoncini  
Mike Thommes

**Charge:** \$25



## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

| Course Name | Course Title                                |
|-------------|---------------------------------------------|
| SLFTEACH    | Introduction and Advanced Concepts of Xedit |

### DEC CBT Courses on the Central VAX 6410 (node ANLCV1)

(Enter RUN "course name" at the DCL level.)

|         |                                               |
|---------|-----------------------------------------------|
| VMSCAI  | Introduction to VAX/VMS                       |
| LSECAI  | Introduction to the Language Sensitive Editor |
| EVECAI  | Introduction to the Extensible VAX Editor     |
| DTRCAI  | Datatrieve for Users                          |
| DTRPCAI | Datatrieve for Programmers                    |



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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division  
DEPOSITORY  
VOLUME 23                                      NUMBER 11                                      NOVEMBER 1992

JAN 2 1 1993

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

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# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The *mission* of the Computing and Telecommunications Division (CTD) is to provide the overall *Information Resources Management* infrastructure for Argonne National Laboratory's scientific and technical programs and administrative functions. The primary *goal* of CTD is to establish and promote a *seamless environment* where individual researchers and workers can easily access and use all elements of the ANL information resources hierarchy, independent of the diverse computer and telecommunications technologies they choose to use.

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The Division operates an Andrew File System consisting of several Sun servers, an IBM 6000 RISC cluster, a Sun 4/490 with Sun OS 4.1.2, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.5, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM 3084 computer includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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## COMPUTING COMMENTS

### **FY1993 COMPUTING RATE STRUCTURE RATE REVISED**

The Chief Financial Officer has reviewed and approved the FY1993 rate structure for the Computing and Telecommunications Division (CTD). The revised rate sheet is attached to this *Newsletter*. We have placed vertical revision bars in the left margin of the rate sheet to provide users with an indication of any differences from the FY1992 rates.

The most significant rate structure changes are:

- Eliminated overnight and weekend shift discounts in MVS and VMS.
- Increased IBM CPU rate by 27 percent and eliminated IBM memory rate.
- Reduced disk storage rates (IBM, VAX, and Unix) by 20 percent to \$0.12 per megabyte day.
- Introduced Andrew File System disk storage rate of \$0.10 per megabyte day.
- Reduced VAX CPU rate by 17 percent.
- Increased most network rates an average of 15 percent.
- Increased printing rates by 25 percent to encourage minimization of waste.
- Increased reel tape storage rates to encourage cartridge use.
- Established new Unix-based services rates for RS6000 usage at \$10 per CPU hour. Users who commit annually to purchase a fraction of a system (that is, 144 CPU hours per month) use those resources at a reduced CPU rate (\$6 per CPU hour).
- Simplified and reduced some rates for scientific visualization services.
- Increased Staff Effort rate by 18 percent to \$65 per hour.

CTD has provided the overall cost recovery plan and the models of recovery by service type to the Chief Financial Officer to document the FY1993 central computing full cost recovery rate structure.

### **COMPUTING CENTER THANKSGIVING HOLIDAY SCHEDULE**

The CTD Network Operations Center (NOC) and the central computers will remain in operation with at least one operator in attendance throughout the Thanksgiving 1992 holiday to provide the level of service comparable to the normal weekend services. An operator will be available to accept and attend to network and computing system trouble reports, to mount tapes, to check personal tapes in and out, and to process and distribute output from all production output devices (for example, the IBM 3800 laser printer and impact printer, the CalComp 5835XP color plotter, PostScript color and black-and-white printers, and microfiche). One exception is the Matrix 35mm slide camera. Unless the slides were distributed to output bins on Wednesday, November 25, 1992, the developed slides will not be available for distribution until Monday, November 30, 1992. However, we can put undeveloped images on a separate roll of film for a user who can then make arrangements for development.

For information about unexpected changes in service, call the Current System Status Recorded Message at extension 2-5466. For assistance in accessing scheduled services, call NOC at extension 2-5421.

### **COMPUTING CLASSES SCHEDULED FOR NOVEMBER AND DECEMBER 1992**

During November and December 1992, the Computing and Telecommunications Division (CTD) will offer seven classes. The schedule (with course numbers and fees) is appended to this *Newsletter*. For information about a class, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). To register for a class, see your Training Management System (TMS) representative. A copy of the "Enrollment Form" is on page 6 and a list of TMS representatives is on page 7 of the *Human Resources Program and Course Guide* (Fall/Winter 1992). Also, a copy of the "Enrollment Form" appears with the class schedule appended to this *Newsletter*. All prospective



attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD may reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class. If necessary, CTD will schedule additional classes. If you cannot attend a class, please cancel your reservation at least *one week* before the class. Since class space is limited, there will be no refund for those who register for a charged class but do not attend.

*Introduction to the Andrew File System (AFS)* (one 3-hour session) provides an introduction to the use of the Andrew File System (AFS) at Argonne. Topics include an overview of basic concepts, a description of the Argonne Laboratory-wide AFS cell, alternatives in accessing AFS, logging in and authenticating, accessing and protecting directories and files, and differences between AFS and the regular Unix file systems. There is a \$25 charge for the class.

*Introduction to the Andrew File System (AFS) for System Administrators* (one 3-hour session) is an extension of the "Introduction to the Andrew File System (AFS)" course for the benefit of workstation administrators. Topics include an overview of additional concepts, considerations for system administrators, installation alternatives for different workstation configurations, and details of AFS Client administration. There is a \$25 charge for the class.

*Using the EMACS Editor in Unix* (one 3-hour lecture and one 2 1/2-hour lab) explains how to use the powerful GNU EMACS editor from the Free Software Foundation. The topics include the fundamentals of editing text, C code, Fortran code, and TeX documents. The advanced topics include compiling under EMACS, invoking shells, editing the directory, using mail, using a single source file to produce man pages and TeX source, and customizing the editor. There is a \$25 charge for the class.

*Using the Vi Editor in Unix* (one 3-hour session) provides users introductory instruction and hands-on experience with the vi interactive text editor. The vi editor has been provided with Unix-based operating systems for many years, and versions have been made available for use under operating systems such as VMS and DOS. Prior Unix experience is not necessary. There is a \$25 charge for the class.

*Introduction to Unix* (two 4-hour lectures with labs) is an overview of the Unix operating system.

Computing users will need some familiarity with Unix to use scientific workstations and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using many useful commands. CTD will establish temporary attendee accounts on the CTD Sun Unix server for the duration of the class. The lab will entail the use of Unix with Sun workstations to reinforce the lecture content. This class assumes knowledge of a Unix editor such as vi or EMACS. There is a \$50 charge for the class.

*Using Unix Workstations and the Distributed Queuing System (DQS) for Batch Computing* (one 3-hour lecture and one 2 1/2-hour lab) introduces the Distributed Queuing System (DQS) that CTD has installed and tested on several of the Sun workstations in User Services. The commands for DQS will be discussed and exemplified. Students will gain hands-on experience in using DQS during the interactive laboratory session. A working knowledge of Unix is necessary. There is a \$25 charge for the class.

*Developing Distributed Fortran and C Applications* (one 6-hour session) introduces students to the use of readily available parallel libraries in writing distributed applications. Important issues related to parallel processing are discussed, leading to an awareness of what types of codes are strong candidates for distributed parallel execution. Alternative message-passing libraries are discussed, including p4 and PVM.

*Getting Started with the Advanced Visualization System (AVS)* (one 3-hour lecture with optional lab) presents basic features of AVS and instructs new users how to manage the AVS environment to address visualization needs. Topics include data types and data import strategies, use of the Geometry Viewer to interact with and transform geometry objects, basic geometric primitives, and visualization techniques involving these primitives. Participants will learn fundamental concepts of designing modules as well as forming module networks to handle common visualization tasks. Knowledge of Unix and some programming skills will be helpful. There is a \$25 charge for the class.

## **CRAY NEWS**

### **CRAY SHUTDOWN COMPLETE**

On Monday, September 28, 1992, CTD began moving data in the /n2 file system to the new Andrew File System (AFS). As a security precaution, on Wednesday, September 30, 1992, CTD reformatted the Cray DD40 disks to destroy any remaining files. On Thursday, October 1, 1992, at 9:10 a.m., Cray Research, Inc. turned the power off to the Cray X-MP/18 mainframe in Building 221. They removed and reclaimed the Freon coolant as Environment, Safety and Health (ESH) monitored the activity to ensure compliance with ANL, federal, and Illinois regulations. By the morning of October 2, 1992, the Cray had been completely shut down with the circuit breakers locked off and tagged. The Cray will remain on the computer room floor until its final disposition is determined.

## **MANAGEMENT INFORMATION SYSTEMS**

### **ANL PUBLICATIONS TRACKING DATABASE AVAILABLE ON THE AIM SYSTEM**

The AIM System now provides a new capability to track ANL publications. The Argonne Publications Tracking Database, managed and operated by the Information and Publishing Division (IPD), gives Argonne authors, publication handlers, and division representatives the ability to retrieve basic information on all Laboratory documents cleared for release or publication. Currently, the Publications Tracking Database includes all documents sent to Technical Information Services (TIS)-Technical Publications Services (TPS) for review and clearance beginning in FY1991 (October 1, 1990) as well as all documents received for clearance prior to FY1991 that were published in calendar year 1991 or later.

The Publications Tracking Database allows users to track the documents through the Laboratory's patent and classification review system to determine the clearance status of a particular document, when the document was sent to the ANL patent

office for review, whether the DOE review process has been completed, and when reprints were ordered. The database includes separate entries for all versions of a particular document from abstract to final. Also, the same document submitted to more than one journal or presented at more than one conference will have a separate record for each submission or presentation.

Users can access the database through the Argonne Information Management (AIM) system database by selecting "J" on the main menu. Users can search for documents or collections of documents based on author(s), keywords in the title, division, cost center, or identification number assigned by TPS. The users' view screen may display only a portion of the title, authors, or conference name. The full title, list of authors, and conference name are in the resulting file that you can send to your personal account by electronic mail.

If you have additional questions about a specific document, call IPD-TPS at extension 2-5610. If you have any comments, questions, or suggestions for the ANL Publications Tracking Database, send a message directly to IPD-TPS by choosing "S" on the main menu.

### **INTEGRATED FINANCIAL SYSTEM UPDATE**

#### **Online Effort System**

In October 1992, seven cost centers used the new online effort system to record scientific effort charges. This Customer Information Control System (CICS)-based system provides the user with real-time validation of cost codes in addition to other edit checks. This system should significantly reduce the number of rejected transactions that Cost Accounting must resolve at the end of the month.

We plan to add additional cost centers each month through January 1993. Progress on the implementation of this system is reported at the Financial Applications Committee to Effect Telesis (FACET) meetings.

#### **Financial Reports**

The end-of-the-year financial reports for FY1992 completed printing on Sunday, October 11, 1992. The Office of the Chief Financial Officer (OCF) and the Integrated Financial System (IFS) Project Team are busy working on the purge of old



data and readying the system for processing 1993 data. Currently, we are planning to run the October 1992 end-of-the-month user reports on or around November 10, 1992. When we submit the October 1992 end-of-the-month reports, we will update the Current System Status Recorded Message (extension 2-5466).

Analysis of the job processing statistics for the end-of-the-year user reports has shown that introduction of the new computing rates and elimination of overnight and weekend shift discounts this year have resulted in the average cost per report at the end of the year increasing approximately 67 percent over the average cost per report for August 1992.

Progress on all phases of the IFS project will be reported at the FACET meetings held on the third working Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## PERSONAL COMPUTING

### **CTD PROMOTES QUICKMAIL SERVICE FOR APPLE MACINTOSH USERS**

There are people who are interested in QuickMail but are unable to justify the cost of a multi-pack license and a dedicated server. Therefore, CTD is offering a service to allow an individual Apple Macintosh user to send and receive QuickMail electronic mail by using a central QuickMail server.

The basic service includes (1) the installation of the required workstation software, (2) telephone help, and (3) server setup and maintenance. If you do not have an Apple Macintosh computer that has access to the Laboratory-wide network, CTD can help you arrange a network connection.

There is a one-time cost of \$100 (1) to install the QuickMail workstation software, (2) to prepare the server, (3) to add the user's name to the database, and (4) to provide a reference sheet and instructions on how to receive and send mail. A \$10 per month service charge covers the use of the server, maintenance, and available telephone help.

The one-time cost of \$100 assumes that you already have an AppleTalk or Ethernet connection

that can access the Laboratory-wide network. One method to connect a single Apple Macintosh to the Laboratory-wide network costs \$450 (one-time cost) for an Apple Ethernet board with transceiver and \$85 per month for a LDI 410 connection to the Private Branch Exchange (PBX). Your building's network configuration may permit alternate methods; contact the CTD Computer Network Section at extension 2-4360 for advice.

For more information or to arrange for installation, call John O'Donnell at electronic mail address [odonnell@anl.gov](mailto:odonnell@anl.gov) or at extension 2-3251.

## SCIENTIFIC WORKSTATIONS

### **ELECTRONICS EXPANDS COMPUTER SERVICES**

The Electronics Department now offers services for the following workstations:

- **IBM RS6000.** Electronics installs, networks, troubleshoots, and upgrades IBM RS6000 workstations. Soon, Electronics will have some parts available, such as the small computer systems interface (SCSI) hard drives. For more information or to let us know your needs, contact Carl Nelson at electronic mail address [nelson@anlel.el.anl.gov](mailto:nelson@anlel.el.anl.gov) or at extension 2-6969.
- **Silicon Graphics.** The Computer Support Section of Electronics is extending its popular hardware maintenance to include several models of workstations from Silicon Graphics: Iris-Indigo, Personal Iris 4D25, and Personal Iris 4D35. In addition to providing fixed-cost hardware maintenance contracts, per incident time and materials service, and system installation, Electronics provides upgrades to disk and memory subsystems at less cost than the manufacturer. Contact Chuck Beck at electronic mail address [chbeck@anl.gov](mailto:chbeck@anl.gov) or at extension 2-6969.
- **DECstation 5000.** Electronics provides hardware and software services for the DECstation 5000 (including the initial system setup, software installation, and network hookup). Electronics helps with the addition of disks, tape, memory, and any turbo-channel devices the DECstation



uses (including setting up disks and tapes in Electronics to minimize the downtime of a customer's system). Electronics provides repair service for the DECstation 5000/200 in either a time-and-material or service contract form. For more information, contact Marty Kroll at electronic mail address [kroll@anl.el.anl.gov](mailto:kroll@anl.el.anl.gov) at extension 2-6969.

### **IBM RS6000 WORKSTATIONS AVAILABLE FOR GENERAL USE**

During the week of September 21, 1992, CTD installed two IBM RS6000 Model 350 workstations. As announced in the October 1992 *Newsletter*, they were to become available for general use on November 1, 1992. Because of problems encountered with the Fiber Distributed Data Interface (FDDI), the two systems will not become available for general use until November 15, 1992. However, CTD still plans to offer trial accounts at no charge for users who wish to test their applications on the Model 350. These trial accounts became available on October 26, 1992, and will continue until November 15, 1992. Users who take advantage of these trial accounts can also have their home directory on the Andrew File System, thus offering an opportunity to take advantage of AFS.

To enroll for access to the IBM RS6000s, contact Account Services at extension 2-5425. Interested users should contact Larry Rudsinski at electronic mail address [rudsinski@anl.gov](mailto:rudsinski@anl.gov) or at extension 2-7219.

### **EASY AFS ACCESS FROM SUN AND IBM RS6000 WORKSTATIONS**

In "How To Access the Laboratory-Wide Andrew File System" in the September 1992 *Newsletter*, we described how any user of a workstation could access the new Andrew File System (AFS) at Argonne, provided their system could be a Network File System (NFS) client. The following is an update of that article.

CTD has purchased a sitewide AFS Client license for each of the following architectures:

Sun 4 with Sun OS 4.1.1 or 4.1.2  
 Sun SPARCstation with Sun OS 4.1.1 or 4.1.2  
 Sun 600 Series MP SPARCstation with Sun OS 4.1.2  
 IBM RS6000 with AIX 3.2

For users of the machines listed, access to AFS through NFS is simplified. In particular, you may issue all AFS commands on your own machine, rather than logging into Achilles.

Your system administrator should add the following pathnames to your PATH environment variables:

```
/usr/afsws/bin
/usr/afsws/etc
```

To reach the laboratory-wide applications (such as ANLPHONE), also add:

```
/afs/anl.gov/usr/local/bin
```

Then you may gain authenticated access to AFS from your own machine by entering:

```
% klog
```

The `unlog`, `tokens`, and `kpasswd` commands and the `fs` and `pts` command suites are all executable on your machine. (The previous instructions to issue `knfs` commands are not applicable here.)

To arrange for access the Laboratory-wide AFS cell in this manner, your system administrator must carry out the following one-time procedure:

1. Create the local AFS mount point:

```
mkdir /afs
```

2. Mount the Argonne AFS cell at the `achilles.ctd.anl.gov:/afs` location. On a Sun, enter:

```
mount -o hard,intr,timeo=300 \
 achilles.ctd.anl.gov:/afs /afs
```

Or add to `/etc/fstab` (on one line):

```
achilles.ctd.anl.gov:/afs /afs nfs
 rw,noquota,hard,intr,bg,timeo=300 0 0
```

On an RS6000, enter:

```
mount -o hard,intr,timeo=300 -v nfs \
 -n achilles.ctd.anl.gov /afs /afs
```

or add the corresponding stanza to `/etc/filesystems`.

3. Create a single-line file `/.AFSSERVER` containing the full Internet name of Achilles, the CTD NFS/AFS Translator:

```
echo "achilles.ctd.anl.gov" > /.AFSSERVER
```

4. Create a companion single-line file `/.AFSCONF` containing the pathname to the directory in AFS containing the necessary configuration data:

```
echo "/afs/anl.gov/common/etc" > /.AFSCONF
```

5. Create a symbolic link from your local disk to the AFS Client commands located in the AFS file system:

```
ln -s /afs/anl.gov/<systype>/usr/afsws /usr/afsws
```

where "<systype>" is one of the following:

|           |                                    |
|-----------|------------------------------------|
| sun4_411  | for Sun 4 (except SPARCstation)    |
| sun4c_411 | for Sun SPARCstation               |
| sun4m_412 | for Sun 600 Series MP SPARCstation |
| rs_aix32  | for IBM RS6000                     |

CTD is offering introductory AFS classes for users and system administrators. Currently, CTD has scheduled classes for November 5 and 6, 1992, and for December 3 and 4, 1992, and will schedule more classes according to demand.

Even better AFS performance may be achieved on your Sun or RS6000 by installing an AFS Client with cache. This is explained in detail in the introductory AFS course for system administrators.

For more information, contact Pete Bertoncini at electronic mail address `pjb@anl.gov` or at extension 2-4827 or Steve Karlovsky at electronic mail address `karlovsky@anl.gov` or at extension 2-7205.

## UNIX NEWS

### ANDREW FILE SYSTEM PROVIDES PUBLIC DIRECTORIES FOR LABORATORY-WIDE APPLICATIONS

Recently, CTD installed the Andrew File System (AFS) and made it available for general use. (See "Easy AFS Access from Sun and IBM RS6000 Workstations" in this *Newsletter* and "Laboratory-

Wide Andrew File System Available" in the September 1992 *Newsletter*.) AFS provides the Laboratory with a mechanism to place commonly used files in one central location that any user with access to AFS can access. Users of any computer that can access files via the Network File System (NFS) can also access AFS. This group includes users of Unix workstations, VAX/VMS systems running the MultiNet NFS-client software, and personal computer (PC) users running PC-NFS.

Using AFS as a repository for commonly used files benefits the Laboratory, since it reduces the need to store these files on individual workstations or file servers. Since some applications (for example, the complete X Window System, including source files) may require hundreds of megabytes of disk space, the potential decrease in disk space required to store such files on many systems at the Laboratory is quite large. AFS provides security mechanisms to protect files using Access Control Lists (ACLs) so that files that should have a restricted but large audience (for example, software for which ANL has purchased a sitewide license) can be controlled by AFS.

To make widely used applications available, we have created the `/afs/anl.gov/usr/local` directory. Under this directory are the subdirectories `bin`, `data`, `lib`, `man`, and `src`. To use applications such as `anlphone`, `document`, `lookup`, and `news` for which we have created Unix shell scripts to invoke the correct version of the application for each computer type, you should add `/afs/anl.gov/appl/local/bin` to your path.

For details on how to access `anlphone`, `document`, `lookup`, and `news` from your Unix workstation or from your divisional VAX/VMS system, see "Laboratory-Wide Unix Applications Available in AFS" and "Laboratory-Wide VMS Applications Available in AFS" in this *Newsletter*.

For applications that consist of many individual binary files and that may provide include and object libraries as well as man pages (such as X Window applications), we have created the `/afs/anl.gov/appl` directory. `X11R4`, `X11R5`, `Motif 1.1.4`, and `openwindows` are subdirectories under `/afs/anl.gov/appl`. Users of `X11R4`, `X11R5`, `Motif`, or `OpenWindows` need only specify the appropriate directory for their computer type in their path to execute X Window clients from these application directories. Table 1 specifies the directories to add to



your Unix path to execute these clients directly from AFS for the Sun4 and RS6000 computers.

**Table 1: X Window Client Directory Paths**

**Directory Path for Sun4 X Window Clients**

| Application | Directory                             |
|-------------|---------------------------------------|
| X11R4       | /afs/anl.gov/appl/X11R4/sun4/bin      |
| X11R5       | /afs/anl.gov/appl/X11R5/sun4/bin      |
| Motif 1.1.4 | /afs/anl.gov/appl/Motif1.1.4/sun4/bin |
| OpenWindows | /afs/anl.gov/appl/openwin/sun4/bin    |

**Directory Path for RS6000 X Window Clients**

| Application | Directory                          |
|-------------|------------------------------------|
| X11R4       | /afs/anl.gov/appl/X11R4/rs6000/bin |
| X11R5       | available soon                     |
| Motif 1.1.4 | available soon                     |

Some applications may contain source files, include files, man pages, and object libraries in addition to or instead of binary files. In addition to X11R5, X11R4, Motif, and OpenWindows, examples of such applications include the Slatec mathematical subroutine library (double-precision version) and the P4 parallel programming library. We have added these libraries to AFS. Table 2 specifies the directory paths to use to refer to such application object libraries.

**Table 2: Library Directory Paths**

**Directory Path for Sun4 Object Libraries**

| Application | Directory                             |
|-------------|---------------------------------------|
| X11R4       | /afs/anl.gov/appl/X11R4/sun4/lib      |
| X11R5       | /afs/anl.gov/appl/X11R5/sun4/lib      |
| Motif 1.1.4 | /afs/anl.gov/appl/Motif1.1.4/sun4/lib |
| OpenWindows | /afs/anl.gov/appl/openwin/sun4/lib    |
| Slatec      | /afs/anl.gov/appl/Slatec/sun4/lib     |
| P4          | /afs/anl.gov/appl/p4/sun4/lib         |

**Directory Path for RS6000 Object Libraries**

| Application | Directory                           |
|-------------|-------------------------------------|
| X11R4       | /afs/anl.gov/appl/X11R4/rs6000/lib  |
| X11R5       | available soon                      |
| Motif 1.1.4 | available soon                      |
| Slatec      | /afs/anl.gov/appl/Slatec/rs6000/lib |
| P4          | /afs/anl.gov/appl/p4/lib            |

(Note that Motif is an application for which the Advanced Photon Source Division has obtained a sitewide license. To limit access to Motif to ANL users, access to the Motif directories is allowed only to users who have authenticated to AFS by using the `klog` command.)

Application source and include files are in sub-directories under the `/afs/anl.gov/appl/application` directory where *application* is one of the above applications.

As future Laboratory-wide application packages are added to AFS, they will be added to the `/afs/anl.gov/appl` or the `/afs/anl.gov/usr/local/bin` directories.

### LABORATORY-WIDE APPLICATIONS AVAILABLE FOR UNIX VIA AFS

Recently, CTD installed the Andrew File System (AFS) and made it available for general use. (See "Andrew File System Provides Public Directories for Laboratory-Wide Applications" and "Easy AFS Access from Sun and IBM RS6000 Workstations" in this *Newsletter* and "Laboratory-Wide Andrew File System Available" in the September 1992 *Newsletter*.) Since AFS provides a convenient place to store commonly accessed files in one central location, CTD has rewritten the Unix versions of `anlphone`, `document`, `lookup`, and `news` to use AFS as the central repository for their databases. In addition, the source, include, binary, makefiles, and man pages for these applications are stored in AFS. To access the AFS versions of these applications from your local Sun or RS6000 workstation, you must have the AFS file system mounted on your workstation. (If you don't have AFS mounted, ask your local Unix system administrator to mount AFS for you. For additional details, refer your system administrator to "Easy AFS Access from Sun and RS6000 Workstations" in this *Newsletter* and "How to Access the Laboratory-Wide Andrew File System" in the September 1992 *Newsletter*.)

You do not have to be an authenticated AFS user to access these applications. At present, we have built these applications for two Unix workstations, Sun 4 and IBM RS6000. We will build and make these applications available for additional workstations in the future. To use `anlphone`, `document`, `lookup`, or `news` from a Sun 4 or IBM RS6000, add the `/afs/anl.gov/usr/local/bin` directory to your path.



An X Window or line-oriented version of these applications is run depending on your Unix environment.

Anlphone locates an ANL or DOE employee's telephone directory entry, based on a search string consisting of an ANL badge number; an employee's last name, first name, and initial; or as much of the name as you can spell. The information found is displayed on the terminal or in an X Window. You may scroll forward or backward through the directory entries corresponding to the first letter of an employee's last name, or you may specify a new search string. Human Resources (HR) updates the database used by **anlphone** each weekend and moves the data to AFS each Sunday afternoon. In addition to office and telephone information, each directory entry may contain an employee's electronic mail address. If your directory entry is not correct, contact your local HR representative.

Document searches the CTD documentation database for the availability of documentation on a given topic. You provide **document** with a search string consisting of keywords. A list of document titles that contains the string is displayed on the terminal or in an X Window. You may use **document** to select documents to order. When you have finished your order, a "Documentation Request" form is printed on the HP LaserJet III SI in CTD known as **anlbwp1** on the CTD Unix systems. This printer must be defined in your local workstation's **/etc/printcap** file or equivalent. If you prefer, you may direct output to one of your divisional laser printers by setting the **PRINTER** environmental variable. The updated documentation database is copied to AFS each day at 5:15 p.m.

Lookup searches the CTD publications database for index entries that contain the given search strings. All entries are displayed on the terminal or in an X Window. The publication database is copied to AFS once a week on Sunday afternoon.

News displays current CTD news bulletins. After news is invoked, a list of items is displayed on the terminal or in an X Window. To see the complete item, you type its number or click the mouse button on the item. The news bulletins are copied to AFS three times each day.

## VAX/VMS NEWS

### LABORATORY-WIDE APPLICATIONS AVAILABLE FOR VMS VIA AFS

Recently, CTD installed the Andrew File System (AFS) and made it available for general use. (See "Andrew File System Provides Public Directories for Laboratory-Wide Applications" and "Easy AFS Access from Sun and IBM RS6000 Workstations" in this *Newsletter* and "Laboratory-Wide Andrew File System Available" in the September 1992 *Newsletter*.) Since AFS provides a convenient place to store commonly accessed files in one central location, CTD has rewritten the VAX/VMS versions of **ANLPHONE**, **DOCUMENT**, and **LOOKUP** to use AFS as the central repository for their databases. To be able to access the AFS versions of these applications from your VMS system, it must be running the MultiNet Network File System (NFS) client software and the AFS file system must be mounted on your system.

We have built these applications on the CTD 6410 VAX and have transferred the executables to AFS. In addition, CTD has created the Digital Command Language (DCL) AFS-ANL-APPL.COM command procedure to invoke these applications from AFS.

To use **ANLPHONE**, **DOCUMENT**, or **LOOKUP** from your VAX, have your VAX system manager mount AFS, copy the AFS-ANL-APPL.COM command procedure from the AFS:[ANL.USR.LOCAL.VMS] directory, and define symbols for **ANLPHONE**, **DOCUMENT**, and **LOOKUP** to execute AFS-ANL-APPL.COM with the appropriate arguments. Alternatively, you may define symbols to invoke the AFS-ANL-APPL.COM command procedure from AFS when **ANLPHONE**, **DOCUMENT**, or **LOOKUP** is invoked:

```
ANLPHONE:= "@AFS:[ANL.USR.LOCAL.VMS]AFS-ANL-APPL ANLPHONE"
DOCUMENT:= "@AFS:[ANL.USR.LOCAL.VMS]AFS-ANL-APPL DOCUMENT"
LOOKUP:= "@AFS:[ANL.USR.LOCAL.VMS]AFS-ANL-APPL LOOKUP"
```

For a review of the capabilities of each of these applications, see "Laboratory-Wide Applications Available for Unix Via AFS" in this *Newsletter*. At present, the Window versions of these applications are not available for VMS.

## POSIX AVAILABLE ON ARGONNE CENTRAL VAX CLUSTER

CTD has installed POSIX 1.1 for OpenVMS on the Argonne central VAX cluster and has made it available on node ANLCV1 (the VAX 6410). The POSIX product implements all of the published and draft POSIX.n standards available. The Institute for Electrical and Electronics Engineers (IEEE) is defining the POSIX standards, and the International Standards Organization (ISO) and X/Open are adopting them. They define a computing environment that includes all operating system functions from the kernel interface through the user interface. The model for the POSIX standard is the Unix operating system licensed by AT&T and available on several platforms. Most elements of the POSIX standards are identical to Unix system elements. The VMS POSIX product also addresses conformance to the X/Open Portability Guide (see below).

If you know Unix, POSIX enables you to work effectively in the VMS environment without learning the VMS commands. You can use the POSIX tools (including the vi editor) and the POSIX (Korn) shell to operate on your VMS files. In addition, you can access VMS applications and utilities as needed. We recommend the POSIX environment rather than the DECshell or the Unix Tools environment that you may have used.

If you develop software, the POSIX standards will allow you to design and program conforming applications that will be transportable among systems that are POSIX compliant. You need to follow the standards to achieve the desired portability. VMS POSIX is available for you to write POSIX programs or to test the compliance of your POSIX programs developed on another POSIX system.

Two alternatives are available for your POSIX file system. You can use the VMS file system; we have mapped the file system of a standard VMS account for use with POSIX. Your HOME and TMPDIR environment variables point to your permanent and temporary VMS directory systems. Alternatively, if your application requires the full Unix-style file semantics, then a POSIX file system can be created by using the "container" file system. If you require this latter alternative, contact Rich Raffanetti at extension 2-8497.

To use the POSIX environment, use your Argonne central VAX cluster account. You can enter the interactive POSIX environment in one of three ways: (1) from a VMS session, (2) from the login prompt (Username:), or (3) from your X-Window session. The simplest way is from a VMS interactive session. Enter:

```
$ POSIX
```

The next prompt you receive is `psx>`. Enter your POSIX commands and use the `exit` command or `CTRL/D` to return to VMS.

If you prefer, you can enter the POSIX environment during login by entering your username followed by the POSIX command line interpreter (CLI) designation:

```
Username: your-username /CLI=POSIX$CLI
```

When your login is complete, you will receive the same `psx>` prompt as above. You logout by entering the `exit` command or `CTRL/D`.

In the X Window System, you may create a terminal window by entering the command

```
$ CREATE /TERMINAL POSIX
```

The POSIX terminal session will display on the workstation that your display is set to (see the `SET DISPLAY` command or use the `SETUP XW` and `XPOSIX` commands). Terminate your window session by using the standard methods for your window manager. For example, if you use Motif, you may double-click on the upper-left corner button to terminate your window session. You may also use the `exit` command or `CTRL/D`.

Information about VMS POSIX conformance and compliance is available online in the following files in the `SYS$HELP` directory:

|                       |                                              |
|-----------------------|----------------------------------------------|
| POSIX_1003_2_DOC      | VMS POSIX Compliance Information for P1003.2 |
| POSIX_1003_4_DOC      | VMS POSIX Compliance Information for P1003.4 |
| POSIX_CONFORMANCE_DOC | POSIX Conformance Document for VMS           |
| XPG3_QUESTIONNAIRE    | X/Open Conformance Statement - Questionnaire |

These files are available in both ASCII text (.TXT) and PostScript (.PS) formats. You may either print them or view them online.

*Guide to Using VMS POSIX (AA-PGPVA-TE), the VMS POSIX Reference Manual: Shell and Utilities (AA-PGPU-TE), and the VMS POSIX Refer-*



*ence Manual: Callable Interface* (AA-PGPTA-TE) are available from Digital Equipment Corporation. If you need these documents, Account Services (extension 2-5425) will order them for you. All of the POSIX documents and reference manuals are also available online by using the X Window Book-reader application.

### **VAX 6410 MEMORY UPGRADED**

During the week of September 21, 1992, CTD upgraded the memory of the Argonne central VAX 6410 (node ANLCV1) from 64 to 128 megabytes, because performance reports indicated a need for more memory. Since summer, the VAX 6410 had been paging excessively because of applications moved from the VAX 8700 to the VAX 6410.

We performed the system tuning procedure to adapt the operating system to the new memory configuration and increased the default maximum physical memory size (working set extent) for all processes to 200,000 pages. With this change, jobs running alone in the system may acquire up to 102.4 megabytes of physical memory before they need to write pages to or read pages from disk. In addition, the BIGMEM batch queue characteristic is now assigned to the VAX 6410 SPECIAL\* queues; formerly, it was only available on the VAX 8700, which does not run batch during the prime shift hours. Because both processors have the BIGMEM characteristic, it is no longer necessary to specify that characteristic on batch jobs. Finally, CTD increased the job limits for queues on node ANLCV1 and decreased those on ANLCV2. Node ANLCV1 is now the primary batch processor all the time.

For more information about using the SPECIAL\* batch queues and for instructions on how to use the BIGMEM characteristic, see *Using the Central VAX Cluster at ANL* (ANL/TM 496) published in August 1992 and available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

## **BITS & BYTES**

### **CTD DATA BACK-UP SCHEDULE**

CTD backs up all online data stored on magnetic disks in Building 221 for MVS, VM, VAX/VMS, and Unix-based services. Following the loss of a data file, no data is lost in most cases, and no more than two days data should ever be lost. Incremental back-ups consist of newly created files or files modified since CTD made the last full back-up.

### **MVS DATA**

The three categories of MVS disk storage are:

|          |                                                              |
|----------|--------------------------------------------------------------|
| PERM     | datasets are eligible for migration after 60 days of non-use |
| TEMP     | datasets scratched seven days after creation                 |
| database | user-managed space                                           |

CTD backs up all MVS disks each Saturday morning to tapes that are reused after three weeks. We store duplicate copies of the most recent set of back-ups in a "disaster vault" in a different building.

CTD backs up the PERM volumes incrementally Monday through Thursday just before midnight. We reuse these back-up tapes the following week.

CTD runs full back-ups of TEMP volumes daily early in the morning Sunday through Friday. We reuse these back-up tapes the following week.

CTD runs full back-ups of database volumes just before midnight Monday through Thursday. We reuse these back-up tapes the following week.

### **VM MINIDISKS**

CTD backs up all VM minidisks each Tuesday morning to tapes that are reused after three weeks. We store duplicate copies of the most recent set of back-ups in a "disaster vault" in a different building.

CTD also backs up the VM minidisks incrementally Tuesday through Monday during the early morning hours. We reuse the incremental back-up tapes the following week.



## VAX/VMS DATA

CTD runs full back-ups of all VMS disks starting on Saturday evening (8:00 p.m.) and running through Sunday morning (8:00 a.m.). We reuse the tapes after three weeks. CTD stores the set of tapes written seven days earlier in a "disaster vault" in a different building; after seven days, they are returned to CTD when another set takes their place in the vault.

CTD also backs up the VMS disks incrementally Monday through Friday evenings. We reuse the incremental back-up tapes the following week.

## UNIX DATA (NON-ANDREW FILE SYSTEM)

CTD backs up Unix disks each Sunday evening (starting at 4:30 p.m.). We reuse the tapes after three weeks. CTD stores the set of tapes written seven days earlier in a "disaster vault" in a different building; after seven days, they are returned to CTD when another set takes their place in the vault.

CTD also backs up the Unix disks incrementally Monday through Friday evenings. We reuse the incremental back-up tapes the following week.

## ANDREW FILE SYSTEM

CTD runs full back-ups of Andrew File System (AFS) volumes each Wednesday morning. We reuse the tapes after three weeks. CTD stores the set of tapes written seven days earlier in a "disaster vault" in a different building; after seven days, they are returned to CTD when another set takes their place in the vault.

CTD also backs up the AFS volumes incrementally Monday, Tuesday, Thursday, and Friday mornings. We reuse the incremental back-up tapes the following week.

## CTD 35MM SLIDE PROCESSING SCHEDULE

Table 3 identifies when CTD removes undeveloped 35mm slide film to give to Media Services for developing and when the finished 35mm slides are available for users in their output bins in Building 221. Note that finished 35mm slides are only available on business days, Monday through Friday. Holidays and weekends are not included.

It is possible in an emergency to record a set of images on a separate roll of 35mm film that you can pick up and make your own arrangements for developing. However, you must contact the Computer Operations Group Leader on duty at extension 2-5421 BEFORE sending the image data to ANLSLIDE. Otherwise, duplicate images may be produced when regular production film is developed. (See "Matrix Slide Camera Now Accepts PostScript from Apple Macintosh, IBM Personal Computer, and Unix Workstations" in the April 1992 Newsletter.)

**Table 3:** 35mm Slide Processing Schedule Monday through Friday Only (Holidays Not Included)

| Film Removed for Development*                                                                                                                                                                                                                                        | Slides Available for Pickup |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 8:00 a.m.                                                                                                                                                                                                                                                            | 11:30 a.m.                  |
| 11:00 a.m.                                                                                                                                                                                                                                                           | 2:45 p.m.                   |
| 2:00 p.m.                                                                                                                                                                                                                                                            | 4:30 p.m.                   |
| * We cannot guarantee all images queued before these times will have been recorded by the specified removal time. Users need to treat this schedule as a guideline. For a tight deadline or special needs, call the Computer Operations Manager at extension 2-5437. |                             |

## RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

### Computing and Telecommunications Documents

*Using the Central VAX Cluster at ANL* (ANL/TM 496) is a local reference companion to the *VMS User's Manual, Version 5.4* (AA-LA98B-TE). Users of the ANL central VAX cluster should be familiar with both manuals. This document

describes local enhancements and other differences; it points to generic information available in the *VMS User's Manual* or in other documents. This document supersedes *Using the Central VAX 8700 Computer at ANL* (ANL/TM 455, Revision 2).

### AFS Documents

The *AFS User's Guide* (FS-D200-00.08.3) describes concepts and procedures necessary for using an Andrew File System (AFS). This document is for AFS users who are familiar with Unix, but not with AFS.

### Computer Associates Documents

The *CA-Disspla Codebook User Guide, Release 1.0* (R099CB1001S) provides how-to and reference information for anyone who wants to generate CA-Disspla code by using Codebook. This document supersedes the *CA-Disspla Codebook User Guide* (RG99CB1001S).

### IBM Documents

The *IBM VS Fortran Version 2 Programming Guide for CMS and MVS, Release 5* (SC26-4222-6) contains information on how to compile and run VS Fortran Version 2 programs, as well as some information on advanced coding topics. For application programming, you will need to use both this book and the *VS Fortran Version 2 Language and Library Reference*. This document supersedes the *IBM VS Fortran Version 2 Programming Guide for CMS and MVS, Release 5* (SC26-4222-5).

### University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (October 1992) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of September 1992.

### Other Vendor Documents

The *MultiNet Version 3.1 Manuals* consists of two volumes. The first volume includes the *Introduction to MultiNet* (an overview of MultiNet), the *MultiNet Installation Guide* (the installation and initial configuration of MultiNet), the *MultiNet System*

*Administrators' Guide* (information about configuring and managing MultiNet), and the *MultiNet V3.1 Release Notes* (the new features of MultiNet V3.1 Rev D). The second volume includes the *MultiNet Users' Guide* (the user utilities and functionality of MultiNet) and the *MultiNet Programmers' Reference Manual* (the programmers' interface to MultiNet). This document supersedes the *MultiNet Version 3.0 Manuals*. Because of the cost of these documents, we order them only on request.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD OCTOBER 6, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:03 p.m.

**Cray Shutdown Status.** Doug Engert (Computing and Telecommunications) reported that CTD made the Cray X-MP unavailable to users on September 28, 1992. CTD copied all Cray disk files to back-up tapes and moved all user files on the /n1 and /n2 file systems to the Andrew File System (AFS) (see next topic). CTD then formatted the Cray disks to ensure the removal of all data. Gary Schlesselman (Computing and Telecommunications) reported that CTD turned off the Cray at 9:10 a.m. on October 1, 1992, and drained the cooling system. The Laboratory is trying to find the least expensive option for removing the hardware.

**Andrew File System.** Doug Engert reported that AFS is now running on a Sun SPARCserver2 (which will be upgraded to a SPARCserver10) having 10 gigabytes of disk space. CTD has enrolled all Cray users having disk files as AFS users and has moved their disk files (totaling 5 gigabytes) from the Cray /n1 and /n2 file systems to directories named in AFS /afs/anl.gov/usr/"division"/"user"/Cray\_n1 and Cray\_n2. (AFS usage is described in "Laboratory-Wide Andrew File System Available" in the September 1992 *Newsletter*, and current news about AFS usage is in /afs/anl.gov/common/README.) Plans include running the cache manager on other workstations, formalizing enrollment procedures for new users, installing frequently requested program products, and creating a Laboratory-wide Unix



administrator database. CTD has prepared a user's guide and has scheduled classes for users and system administrators. One user stated that the current procedures by which a user gains access to AFS are too cumbersome for effective use by the general user. CTD responded that the procedures will be simplified in the near future.

**New Workstations Installed.** Larry Rudinski (Computing and Telecommunications) reported that CTD installed two IBM RS6000 Model 350 workstations on September 21, 1992. They will be available for free user testing until October 31, 1992; thereafter, there will be a charge. User's home file systems are on AFS. There have been some problems with the interface between these machines and the CTD Fiber Distributed Data Interface (FDDI) network. For additional details on the configuration of these machines and the proposed charging, see "RS6000 Model 350 Available" in the October 1992 *Newsletter*.

**Proposed Computing Rates for FY1993.** Mike Boxberger (Computing and Telecommunications) gave an overview of the proposed rate structure for computing services. One goal of the new structure is simplification. Two specific examples are the elimination of the "shift differential" multiplier and the "storage occupancy" component of job/session costs. Highlights of the changes are (1) the IBM Central Processing Unit (CPU) and the input/output (I/O) rates increase by 25 percent, (2) the VAX CPU rate decreases by 17 percent, (3) disk storage rates decrease by 20 percent, (4) AFS storage rates are lower than the rates for other devices by 17 percent, (5) the rates for Unix services are lower for users who are willing to pre-commit to using a certain fraction of the machine, (6) the rates for many peripheral services increase, and (7) the tape storage rate is set to encourage the use of cartridge, rather than reel, tapes. The new rates are expected to go into effect later this week and are appended to this *Newsletter*. Some users felt that the elimination of shift differentials would accelerate migration from the IBM system and that the disk storage rates could be reduced even further. CTD's recovery of operating costs will be examined periodically during the year, which may result in mid-year rate changes.

**MVS/XA Status Report.** Jerry Davison (Computing and Telecommunications) reported that an initial version of the MVS/XA operating system on the IBM 3084 was made available for user testing on

September 14, 1992. CTD has tested the Fortran compiler and OS utilities. Since that time, TSO/E and Wylbur have been made available; they are accessed by typing "XAT" and "XAW," respectively, on the System Network Architecture (SNA) system-select screen. Magnetic tapes are not yet accessible, pending the conversion of the tape management program. CTD does not plan to carry forward the local modification that provides the usage and cost for CPU time, storage occupancy, and EXCPs for the total job that are shown in the JOBTTERM block of DDNAME SYSMSG under the current MVS operating system. This usage (but not cost) information will still be provided for each step in the STEPTERM block, and the job cost information can be obtained a day later (by the user submitting a job to query the job accounting database). One factor motivating our movement to MVS/XA is that IBM will discontinue maintenance for our current MVS operating system on December 31, 1992.

**Planning and Status of FDDI Installation.** Bob McMahon (Computing and Telecommunications) reported that Argonne issued an invitation to bid on the Laboratory-wide fiber optic cable plant in July 1992. The Laboratory received six proposals. On August 7, 1992, Argonne awarded the contract to Digital Equipment Corporation (DEC). Representatives from DEC and their subcontractor are now onsite installing the fiber-optic cable with the work to be completed by November 15, 1992.

Bob also announced two Basic Ordering Agreements (BOAs) that have been established. Argonne has revised the BOA for routers and will purchase these routers from Cisco Systems. The Laboratory is reviewing proposals from vendors to establish a BOA for "smart hubs." The existence of BOAs streamlines the process of purchasing specific equipment that is ordered on a recurring basis.

**Laboratory Membership in the Open Software Foundation.** Mark Anderson (Advanced Photon Source) provided an overview of the Open Software Foundation (OSF). OSF is a not-for-profit research and development organization founded in May 1988 with the stated mission of overcoming the current "closed" aspects of Unix because of its single source (that is, AT&T). The primary goals include providing software solutions that enable computers from multiple vendors to work together in a true open systems environment and using an open process for selecting and implementing these software



solutions. There are over 340 international member institutions (including major hardware and software vendors, government agencies, universities, and laboratories). Members participate in the definition of the open system architecture and have early access to software developments; there is much opportunity for collaboration and cooperation.

The five major OSF technology areas are (1) the "Motif" graphical user interface (the *de facto* standard under the X Window System), (2) the OSF/1 operating system (a non-AT&T derivative of Unix), (3) the Distributed Computing Environment (a set of services to develop, use, and maintain distributed applications across multiple operating systems and networks), (4) the Distributed Management Environment (a set of services for computer and network management), and (5) the Architecture-Neutral Distribution Format (enabling machine-independent code to be distributed and converted to a machine-specific version as needed).

In January 1992, Argonne became a member of OSF. Through this membership, we have access to the source code for "Motif." For additional information, contact Mark Anderson (the Laboratory's representative to OSF) at extension 2-5764.

**Networking Relational Databases.** Bob McMahon made users aware that there is increasing use of relational databases across many divisions of the Laboratory. There is no central coordination of these activities. The software and hardware being used is quite varied. He has been helping resolve difficulties associated with the networking aspects of these applications; for example, there is work in progress to test the Oracle software package inter-operating between a Sun computer in CTD and the VAX and Sun computers in the Advanced Photon Source (APS). Users needing assistance with the networking aspects of these applications should contact Bob at extension 2-7270.

The Computer Users Group normally meets on the first Tuesday of each month at 3:00 p.m. in Building 221, Room A-216. Contact Pat Garner (extension 2-4872) or Ken Miles (extension 2-3095) to be placed on the distribution list for meeting announcements or for additional information.

The CUG meeting adjourned at 4:33 p.m.

Pat Garner, Acting CUG Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD OCTOBER 14, 1992**

Bob Kampwirth (Materials Science) opened the meeting at 11:10 a.m. in Building 221, Room A-261. The meeting opened with a general discussion. The student edition of *Mathematica* (available from the University of Chicago) is identical to the standard edition.

ACI (formerly ACIUS) 4th Dimension, a multi-user, relational database for the Apple Macintosh, was discussed. Ed Miller and Don Whitley, Creative Software Solutions, do custom design of 4th Dimension Data Base Management Systems (DBMS). They have already created two systems onsite. They described the organization, features, and appearance of 4th Dimension. The design level presents an object-type layout field: even linking databases on a field is click-and-drag. Keyword lists have a Font/DA Mover-type interface. You can customize the Find command. Fields can be indexed or non-indexed. You can create additional functionality in C or Pascal.

Jeanne Glass, ACI, reviewed the structure and features of 4th Dimension Version 3.0 and 4D Server. The new 4D Server software is positioned between a Unix-Oracle-type DB and a Mac-FileMaker-type DB. It creates a client/server environment that optimizes the available network. Features include centralized processing, increased performance, faster communication (it doesn't use AppleShare), and efficient use of memory on the server. Additional modules include 4D Write, 4D Calc, 4D Draw, and 4D Graph3D. Connectivity products include 4D Structured Query Language (SQL) server (SyBase), 4D Oracle, 4D Data Access Language (DAL), and 4D Windows NT. 4th Dimension 3.0 will be released at the end of October 1992 for \$895. 4D Server will be released at the end of November 1992 for three (concurrent) users at \$1,495, six users at \$2,495, ten users at \$3,495, and \$1,000 for every additional five users. There is a discount and upgrade policy.

Future topics for the Macintosh Users Group meetings include QuickTime, Open Collaboration Environment (OCE), AppleTalk Remote, and new features of System 7.1. (Bob Kampwirth will look into the status of a site license for System 7.1.) Currently, there are two AppleLink nodes on site: MSD (Loren Thompson) and CTD (Fred Moszur). The

Tuesday, November 17, 1992, meeting will be devoted to Apple's new machines. The December 1992 meeting will be on Helix Express, a new version of the Double Helix database.

The Macintosh Users Group normally meets on the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Information and Publishing), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at QuickMail address [lee\\_wagar@qmgate.anl.gov](mailto:lee_wagar@qmgate.anl.gov) or at extension 2-5603.

The meeting adjourned at 1:00 p.m.

Lee Wagar, Acting Macintosh Users Group Secretary.

# WORKLOAD STATISTICS (AUGUST 31 THROUGH SEPTEMBER 30, 1992)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,197              | 1,198        | 396                 |
| Wylbur      | 1,510              | 1,496        | 252                 |
| MVS TSO     | 57                 | 57           | 21                  |
| CICS        | 2,315              | 2,296        | 288                 |
| MVS Batch   | 2,315              | 2,296        | 562                 |
| VAX/VMS     | 874                | 866          | 160                 |
| Unix        | 153                | 355          | *                   |
| All Systems | 2,315              | 2,296        | 885                 |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |        |         |        | SESSION    | CPU        |
|--------------------|--------------------------------|--------|---------|--------|------------|------------|
|                    | PRIME                          | NIGHT  | WEEKEND | TOTAL  | TIME (HRS) | TIME (HRS) |
| <b>INTERACTIVE</b> |                                |        |         |        |            |            |
| CMS                | 12,351                         | 4,913  | 4,112   | 21,376 | 43,323     | 113.02     |
| Wylbur             | 4,813                          | 130    | 194     | 5,137  | 5,344      | 3.96       |
| MVS TSO            | 1,108                          | 12     | 15      | 1,135  | 877        | 3.37       |
| CICS               | 19                             | 45     | 34      | 98     | 0          | 11.78      |
| VAX/VMS            | 7,159                          | 4,045  | 3,451   | 27,746 | 10,982     | 108.53     |
| <b>IBM BATCH</b>   |                                |        |         |        |            |            |
| Class U            | 7,238                          | 1,739  | 1,209   | 10,186 | **         | 22.07      |
| Class W            | 15,719                         | 3,239  | 702     | 19,660 | **         | 122.67     |
| Class X            | 5                              | 1,079  | 29      | 1,113  | **         | 21.86      |
| Class Y            | 0                              | 0      | 312     | 312    | **         | 14.01      |
| Nonmain            | 19,875                         | 4,866  | 2,542   | 27,283 | **         | 0.00       |
| Total              | 42,837                         | 10,923 | 4,794   | 58,554 | **         | 180.61     |
| <b>VMS BATCH</b>   |                                |        |         |        |            |            |
| W BATCH            | 902                            | 679    | 283     | 1,864  | **         | 9.67       |
| X BATCH            | 0                              | 4      | 0       | 4      | **         | 3.26       |
| Y BATCH            | 0                              | 0      | 0       | 0      | **         | 0.00       |
| Total              | 902                            | 683    | 283     | 1,868  | **         | 12.93      |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               |            |
| Local                       | 63,217,999 |
| Remote                      | 57,454,195 |
| Fiche                       | 68,236,250 |
| Tape Mounts                 | 7,176      |
| Microfiche Developed        | 7,567      |
| Microfiche Frames Developed | 1,537,950  |

## GRAPHICS

|                      | # OF JOBS | # OF FRAMES |
|----------------------|-----------|-------------|
| CalComp Jobs         | 45        | ***         |
| Matrix 35mm Color    | 64        | 100         |
| Seiko (Paper)        | 212       | 575         |
| Seiko (Transparency) | 130       | 483         |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 24,276 |
| Round Tapes Saved           | 101    |
| Round Tapes Released        | 383    |
| Cartridges Saved            | 1,668  |
| Cartridges Released         | 2,124  |
| Datasets Exported to Tape   | 920    |
| Datasets Imported from Tape | 379    |

\* not available

\*\* not applicable

\*\*\* The frame count is available only from jobs queued through the VAX cluster.



COMPUTING CENTER USE IN DOLLARS BY COST CENTER (AUGUST 31 THROUGH SEPTEMBER 30, 1992)

| CC                                                    | CCNAME                            | IBM      | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|-------------------------------------------------------|-----------------------------------|----------|----------|----------|----------|------------|-----------|
| <b>ADVANCED PHOTON SOURCE</b>                         |                                   |          |          |          |          |            |           |
| 131                                                   | ACCELERATOR SYS DIV               | \$180    | \$2      | \$0      | \$10     | \$150      | \$342     |
| 132                                                   | EXP FACIL DIV                     | \$83     | \$0      | \$0      | \$6      | \$238      | \$326     |
| 133                                                   | APS PROJECT OFFICE                | \$0      | \$0      | \$0      | \$17     | \$0        | \$17      |
| 272                                                   | ADVANCED PHOTON SOURCE            | \$240    | \$0      | \$0      | \$65     | \$151      | \$456     |
| 340                                                   | APS ASD MANAGEMENT                | \$0      | \$0      | \$0      | \$0      | \$13,145   | \$13,145  |
| 341                                                   | APS ACCELERATOR PHYSICS           | \$263    | \$4,547  | \$0      | \$111    | \$104      | \$5,024   |
| 342                                                   | APS DIAGNOSTICS                   | \$3      | \$21     | \$0      | \$9      | \$0        | \$33      |
| 343                                                   | APS LINAC                         | \$0      | \$105    | \$0      | \$0      | \$0        | \$105     |
| 344                                                   | APS RF                            | \$3      | \$164    | \$0      | \$537    | \$20       | \$724     |
| 345                                                   | APS VACUUM/MECHANICAL ENG.        | \$9      | \$2,317  | \$247    | \$148    | \$457      | \$3,179   |
| 347                                                   | APS CONTROLS                      | \$53     | \$35     | \$0      | \$0      | \$6        | \$95      |
| 348                                                   | APS MAGNETS                       | \$60     | \$149    | \$0      | \$37     | \$104      | \$349     |
| 349                                                   | APS POWER SUPPLIES                | \$29     | \$0      | \$0      | \$0      | \$16       | \$46      |
| 350                                                   | APS DIVISION MANAGEMENT           | \$35     | \$10     | \$0      | \$0      | \$0        | \$45      |
| 351                                                   | APS INSERTION DEVICES             | \$35     | \$824    | \$0      | \$78     | \$69       | \$1,007   |
| 352                                                   | APS ENGINEERED SYSTEMS            | \$63     | \$500    | \$0      | \$0      | \$104      | \$668     |
| 353                                                   | APS BEAM LINE INSTRUMENTATION     | \$29     | \$571    | \$0      | \$46     | \$864      | \$1,509   |
| 360                                                   | APS CONVENTIONAL FACILITIES       | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 361                                                   | APS PROJECT DIRECTION             | \$53     | \$46     | \$0      | \$320    | \$400      | \$820     |
| 362                                                   | APS MANAGEMENT GENERAL            | \$0      | \$0      | \$0      | \$0      | \$43       | \$43      |
| SUBTOTAL                                              |                                   | \$1,110  | \$9,293  | \$248    | \$1,382  | \$15,872   | \$27,903  |
| <b>ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH</b> |                                   |          |          |          |          |            |           |
| 110                                                   | BIO & MED RES DIV                 | \$717    | \$2,528  | \$74     | \$788    | \$1,048    | \$5,155   |
| 125                                                   | TECHNOLOGY TRANSFER CENTER        | \$86     | \$12     | \$0      | \$7      | \$149      | \$254     |
| 149                                                   | ENVIRONMENTAL RESEARCH DIV        | \$1,247  | \$4,039  | \$112    | \$618    | \$2,007    | \$8,024   |
| 155                                                   | ENERGY SYSTEMS DIVISION           | \$2,999  | \$895    | \$125    | \$304    | \$1,268    | \$5,591   |
| 161                                                   | IPD-TECH INFO SERV                | \$391    | \$41,090 | \$0      | \$4,517  | \$909      | \$46,907  |
| 165                                                   | ENV ASSESS & INFO SCI DIV         | \$2,679  | \$3,620  | \$320    | \$280    | \$2,070    | \$8,970   |
| 260                                                   | IPD-MEDIA SERV DEPT               | \$226    | \$2,679  | \$0      | \$36     | \$359      | \$3,300   |
| 265                                                   | IPD-TECH COM SERV                 | \$71     | \$0      | \$0      | \$2      | \$13       | \$86      |
| 274                                                   | ENER/ENV/BIO RES PROG ADM         | \$321    | \$10     | \$0      | \$27     | \$437      | \$795     |
| 288                                                   | INF & PUBL DIV                    | \$107    | \$13     | \$0      | \$5      | \$102      | \$228     |
| SUBTOTAL                                              |                                   | \$8,845  | \$54,888 | \$631    | \$6,585  | \$8,363    | \$79,311  |
| <b>ENGINEERING RESEARCH</b>                           |                                   |          |          |          |          |            |           |
| 102                                                   | EBR-II PROJECT-ANL WEST           | \$4,361  | \$15     | \$549    | \$2,292  | \$314      | \$7,532   |
| 104                                                   | FUELS AND PROCESSES DIVISION      | \$792    | \$138    | \$1      | \$390    | \$-2,651   | \$-1,331  |
| 107                                                   | CHEMICAL TECHNOLOGY DIVISION      | \$641    | \$380    | \$260    | \$463    | \$592      | \$2,336   |
| 112                                                   | REACTOR ENGINEERING DIVISION      | \$2,677  | \$954    | \$52     | \$825    | \$2,171    | \$6,679   |
| 114                                                   | MATLS & COMP TECH DIV             | \$2,919  | \$1,563  | \$275    | \$580    | \$2,454    | \$7,792   |
| 115                                                   | ENGINEERING PHYSICS DIVISION      | \$2,160  | \$1,753  | \$2,809  | \$1,830  | \$-4,328   | \$4,223   |
| 116                                                   | REACTOR ANALYSIS DIVISION         | \$35,291 | \$2,426  | \$17,896 | \$11,517 | \$15,266   | \$82,396  |
| 117                                                   | ENGINEERING PHYSICS ANL-WEST      | \$1,108  | \$116    | \$170    | \$52     | \$327      | \$1,772   |
| 118                                                   | FUEL CYCLE DIVISION               | \$1,323  | \$3,370  | \$3,320  | \$363    | \$416      | \$8,791   |
| 171                                                   | ENG RES PROG DIR                  | \$2      | \$0      | \$0      | \$0      | \$0        | \$2       |
| 197                                                   | SPECIAL PROJECTS OFFICE           | \$475    | \$15     | \$0      | \$62     | \$449      | \$1,001   |
| 211                                                   | ENGR PHYS DIV - DESIGN ENGR       | \$30     | \$0      | \$0      | \$6      | \$107      | \$143     |
| 269                                                   | ANALYTICAL CHEMISTRY LABORATORY   | \$95     | \$27     | \$0      | \$12     | \$226      | \$361     |
| 271                                                   | ENG RES PROG ADMIN                | \$261    | \$41     | \$201    | \$89     | \$487      | \$1,078   |
| SUBTOTAL                                              |                                   | \$52,134 | \$10,798 | \$25,533 | \$18,481 | \$15,829   | \$122,776 |
| <b>PHYSICAL RESEARCH</b>                              |                                   |          |          |          |          |            |           |
| 105                                                   | MATERIALS SCIENCE DIVISION        | \$506    | \$1,769  | \$166    | \$603    | \$841      | \$3,884   |
| 109                                                   | PHYSICS DIV                       | \$1,588  | \$677    | \$16     | \$932    | \$-5,705   | \$-2,493  |
| 120                                                   | CHEMISTRY DIV                     | \$677    | \$2,082  | \$2,627  | \$346    | \$2,734    | \$8,467   |
| 136                                                   | INT PULSE NEUT SOURCE PROG        | \$88     | \$84     | \$33     | \$262    | \$300      | \$767     |
| 137                                                   | HIGH ENERGY PHYSICS DIV           | \$414    | \$1,187  | \$303    | \$635    | \$840      | \$3,378   |
| 139                                                   | DIV OF EDUCATIONAL PROGRAMS       | \$556    | \$0      | \$0      | \$266    | \$281      | \$1,102   |
| 145                                                   | MATHEMATICS & COMPUTER SCI DIV    | \$125    | \$93     | \$379    | \$41     | \$314      | \$953     |
| 146                                                   | CTD DIV - SCI APPL & RES          | \$40     | \$223    | \$8      | \$17     | \$1,723    | \$2,012   |
| 273                                                   | PHYSICAL RESEARCH PROGRAM ADMIN   | \$287    | \$10     | \$0      | \$45     | \$124      | \$466     |
| SUBTOTAL                                              |                                   | \$4,281  | \$6,124  | \$3,532  | \$3,147  | \$1,452    | \$18,536  |
| <b>EXTERNAL</b>                                       |                                   |          |          |          |          |            |           |
| 751                                                   | FERMI NATIONAL LABORATORY         | \$484    | \$0      | \$0      | \$777    | \$538      | \$1,799   |
| 752                                                   | NAVY                              | \$5,096  | \$0      | \$0      | \$765    | \$3,708    | \$9,569   |
| 753                                                   | MORGANTOWN ENERGY TECH CENTER     | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 754                                                   | DEPARTMENT OF ENERGY AT ANL       | \$0      | \$10     | \$0      | \$14     | \$0        | \$24      |
| 760                                                   | ABBOTT LABORATORIES               | \$2      | \$0      | \$24     | \$0      | \$0        | \$26      |
| 777                                                   | UNIVERSITY OF CHICAGO AT ANL      | \$12     | \$0      | \$0      | \$150    | \$0        | \$162     |
| 778                                                   | ARGONNE CREDIT UNION              | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 779                                                   | UNIVERSITY OF ILLINOIS AT CHICAGO | \$6      | \$0      | \$0      | \$0      | \$0        | \$6       |
| 780                                                   | NEW BRUNSWICK LABORATORY          | \$9      | \$0      | \$0      | \$0      | \$0        | \$9       |
| 782                                                   | PACKER ENGINEERING                | \$3      | \$3      | \$0      | \$0      | \$10       | \$17      |
| 783                                                   | WEST VALLEY NUCLEAR SERVICES CO   | \$8      | \$0      | \$0      | \$0      | \$0        | \$8       |
| 784                                                   | SSC LABORATORY                    | \$0      | \$52     | \$168    | \$0      | \$10       | \$230     |
| 790                                                   | GRUMANN AEROSPACE                 | \$0      | \$0      | \$0      | \$0      | \$20       | \$20      |
| 791                                                   | LAWRENCE LIVERMORE                | \$0      | \$0      | \$0      | \$0      | \$-908     | \$-908    |
| 792                                                   | NATIONAL ACADEMY OF SCIENCES      | \$381    | \$3      | \$925    | \$138    | \$6,512    | \$7,959   |
| SUBTOTAL                                              |                                   | \$6,014  | \$68     | \$1,118  | \$1,845  | \$9,891    | \$18,936  |

| CC  | CCNAME                          | IBM        | VAX      | CRAY     | NETWORK  | PERIPHERAL | CCTOTAL   |
|-----|---------------------------------|------------|----------|----------|----------|------------|-----------|
|     |                                 | OPERATIONS |          |          |          |            |           |
| 140 | ENVIRONMENT & WASTE MANAGEMENT  | \$0        | \$0      | \$0      | \$8      | \$2        | \$9       |
| 143 | SUPP SERV DIV - ELEC DEPT       | \$211      | \$5      | \$0      | \$288    | \$354      | \$858     |
| 148 | HUMAN RESOURCES-MEDICAL DEPT    | \$6,059    | \$0      | \$0      | \$294    | \$830      | \$7,183   |
| 150 | SUPPORT SERV DIV - SPEC MATLS   | \$228      | \$0      | \$0      | \$56     | \$182      | \$466     |
| 201 | OFFICE OF THE DIRECTOR          | \$160      | \$0      | \$0      | \$138    | \$114      | \$412     |
| 202 | OFC OF CHIEF OPER OFCR          | \$21       | \$0      | \$0      | \$110    | \$113      | \$244     |
| 210 | SUPP SERV DIV - CENT SHOPS      | \$452      | \$0      | \$0      | \$91     | \$617      | \$1,159   |
| 216 | SUPPORT SERVICES DIVISION       | \$164      | \$0      | \$0      | \$16     | \$111      | \$291     |
| 222 | PLANT FAC & SERV-LODGING FAC    | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 232 | SUPPORT SERV DIV - SECURITY     | \$208      | \$0      | \$0      | \$0      | \$157      | \$365     |
| 234 | ESH DIV-HEALTH PHY              | \$297      | \$599    | \$0      | \$179    | \$251      | \$1,326   |
| 235 | ESH DIV                         | \$1,675    | \$131    | \$1      | \$281    | \$614      | \$2,702   |
| 236 | ESH DIV-FIRE DEPT               | \$8        | \$0      | \$0      | \$0      | \$101      | \$109     |
| 245 | COMPUTING AND TELECOM DIV       | \$29,182   | \$0      | \$0      | \$4,423  | \$3,571    | \$37,176  |
| 247 | COMP & TEL DIV - COM SERV       | \$2,748    | \$0      | \$0      | \$295    | \$1,518    | \$4,561   |
| 275 | OFFICE OF PUBLIC AFFAIRS        | \$645      | \$0      | \$0      | \$48     | \$176      | \$869     |
| 276 | OFC PUB AF - MOTN PIC UNIT      | \$43       | \$0      | \$0      | \$1      | \$24       | \$68      |
| 296 | TELECOM COST/RECOVERY           | \$0        | \$0      | \$0      | \$5      | \$0        | \$5       |
| 315 | SUPP SERV DIV-MATLS & SERV      | \$4,216    | \$0      | \$0      | \$1,109  | \$915      | \$6,240   |
| 316 | PLANT FAC & SERV-VEH MAINT      | \$0        | \$0      | \$0      | \$0      | \$171      | \$171     |
| 317 | PLANT FAC & SERV-DRIV&RIG SERV  | \$39       | \$0      | \$0      | \$1      | \$100      | \$140     |
| 319 | SUPP SERV DIV-TRAVEL OFC        | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 322 | SUPP SERV DIV-PROCUREMENT       | \$208      | \$1      | \$0      | \$66     | \$166      | \$441     |
| 331 | EEO-INDIRECT                    | \$7        | \$0      | \$0      | \$2      | \$0        | \$9       |
| 333 | ENVIR SAFE HEALTH & QA OVERSIGH | \$466      | \$30     | \$0      | \$23     | \$357      | \$877     |
| 336 | SUPP SERV DIV - INSPECTION      | \$18       | \$0      | \$0      | \$0      | \$2        | \$20      |
| 400 | OFC OF CHIEF FIN OFFICER        | \$51,000   | \$0      | \$0      | \$3,183  | \$12,245   | \$66,429  |
| 401 | ACCOUNTING                      | \$0        | \$0      | \$0      | \$9      | \$0        | \$9       |
| 403 | BUDGET OFFICE                   | \$3        | \$0      | \$0      | \$0      | \$0        | \$3       |
| 410 | HUMAN RESOURCES DEPARTMENT      | \$24,805   | \$11     | \$0      | \$1,390  | \$5,061    | \$31,266  |
| 412 | AFFIRM ACTION PROGRAM           | \$68       | \$0      | \$0      | \$45     | \$101      | \$214     |
| 501 | PLANT FAC & SERV-BLDG MAINT     | \$56       | \$0      | \$0      | \$47     | \$719      | \$822     |
| 502 | PLANT FAC & SERV-INSTALLATIONS  | \$82       | \$0      | \$0      | \$15     | \$296      | \$393     |
| 503 | PLANT FAC & SERV-GROUNDS        | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 504 | PLANT FAC & SERV-CUSTODIAL      | \$3        | \$0      | \$0      | \$0      | \$100      | \$103     |
| 505 | PLANT FAC & SERV-WASTE MGMT OP  | \$44       | \$0      | \$0      | \$62     | \$100      | \$206     |
| 506 | PLANT FAC & SERV-PLANT MGR OFC  | \$866      | \$0      | \$0      | \$80     | \$443      | \$1,390   |
| 509 | PLANT FAC & SERV-OPERATION DIN  | \$0        | \$0      | \$0      | \$0      | \$0        | \$0       |
| 510 | PLANT FAC & SERV-UTILITY SYST   | \$0        | \$0      | \$0      | \$1      | \$100      | \$101     |
| 512 | PLANT FAC & SERV-FAC PLNG/ENG   | \$635      | \$50     | \$0      | \$213    | \$152      | \$1,050   |
| 530 | SITE MGRS OFC-ANL WEST          | \$115      | \$0      | \$0      | \$3      | \$101      | \$220     |
| 531 | HUMAN RESOURCES-AW              | \$147      | \$0      | \$0      | \$36     | \$100      | \$284     |
| 532 | SPECIAL MATLS-ANL WEST          | \$1,250    | \$0      | \$0      | \$216    | \$306      | \$1,773   |
| 533 | ACCOUNTING-ANL WEST             | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 534 | PURCHASING-ANL WEST             | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 535 | SECURITY - ANL WEST             | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 536 | ENVIRONMENT, SAFETY & HEALTH-AW | \$6        | \$0      | \$0      | \$0      | \$100      | \$106     |
| 537 | INFORMATION SERVICE-ANL WEST    | \$0        | \$0      | \$0      | \$0      | \$100      | \$100     |
| 538 | SUPPLY-AW                       | \$73       | \$0      | \$0      | \$11     | \$100      | \$184     |
| 548 | ANL WEST GENERAL EXPENSE        | \$205      | \$0      | \$0      | \$58     | \$0        | \$263     |
| 550 | COMPUTER APPL & SERV - ANL-W    | \$9        | \$0      | \$0      | \$0      | \$0        | \$9       |
| 552 | FE DIV COM AND COMP SERV - ANL- | \$55       | \$2      | \$0      | \$6      | \$100      | \$163     |
| 554 | MACHINE SHOP-ANL WEST           | \$48       | \$0      | \$0      | \$10     | \$100      | \$159     |
| 556 | SITE ENGRG-ANL WEST             | \$147      | \$0      | \$0      | \$17     | \$100      | \$264     |
| 557 | PLANT SERVICES-AW-SERVICE REQ   | \$142      | \$1      | \$0      | \$17     | \$100      | \$260     |
| 558 | PLANT SERVICES-AW-FUNCTION      | \$30       | \$0      | \$0      | \$3      | \$0        | \$33      |
| 561 | OFC OF QUALITY ASSURANCE - AW   | \$9        | \$0      | \$0      | \$0      | \$101      | \$111     |
| 570 | AW-ESH/QA OVERSIGHT             | \$24       | \$0      | \$0      | \$0      | \$10       | \$34      |
|     | SUBTOTAL                        | \$126,883  | \$831    | \$1      | \$12,917 | \$31,678   | \$172,310 |
|     | TOTAL                           | \$199,268  | \$82,002 | \$31,062 | \$44,356 | \$83,084   | \$439,772 |

## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance                                                     | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|--------------------------------------------------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center                                                      | 2-5421                                | 8-708-252-5421    | 252-5421                   |
| Current System Status Recorded Message                                         | 2-5466                                | 8-708-252-5466    | 252-5466                   |
| User Consultant                                                                | 2-5405                                | 8-708-252-5405    | 252-5405                   |
| Documentation                                                                  | 2-5405                                | 8-708-252-5405    | 252-5405                   |
| Computer Operations                                                            | 2-5421                                | 8-708-252-5421    | 252-5421                   |
| VM/SP Operator                                                                 | 2-8442                                | 8-708-252-8442    | 252-8442                   |
| RADS Maintenance                                                               | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service                                                      | 1-800-332-1478 (only within Illinois) |                   |                            |
| <b>CICS, CMS, Wylbur, and TSO Interactive Computing Services</b>               |                                       |                   |                            |
| IBM 3270 Protocol Converter                                                    |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-3270                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-3270                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-3219                   |
| X.25 Terminal Multiplexor                                                      |                                       |                   |                            |
| 300 to 19.2K Bits Per Second(Onsite)                                           | 2-2525                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-2525                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-2519                   |
| IBM 3174 Cluster Controller                                                    | 2-3174                                | n.a.              | n.a.                       |
| 1,200 Bits Per Second Full-Duplex                                              |                                       |                   |                            |
| (Bell 212 and Hayes Compatible Modems)                                         | 2-2212                                | n.a.              | 252-2212                   |
| 1,200 Bits Per Second Full-Duplex                                              |                                       |                   |                            |
| (Vadic 3400 Compatible Modems)                                                 | 2-7612                                | n.a.              | 252-7612                   |
| 300 Bits Per Second                                                            | 2-7603*                               | n.a.              | 252-7603*                  |
| * When using a 300 bits per second modem, you must use a capital "P" to logon. |                                       |                   |                            |
| <b>Batch Remote Job Entry Service</b>                                          |                                       |                   |                            |
| 2,000 or 2,400 Bits Per Second                                                 |                                       |                   |                            |
| (Bell 201A and 201C Compatible Modems)                                         | 2-7989                                | n.a.              | 252-7989                   |
| 4,800 Bits Per Second                                                          |                                       |                   |                            |
| (Bell 208B Compatible Modems)                                                  | 2-7573                                | n.a.              | 252-7573                   |
| <b>Central DEC VAX Cluster</b>                                                 |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-8700                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-8700                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-8745                   |
| <b>Argonne TCP/IP Network</b>                                                  |                                       |                   |                            |
| 1200 to 19.2K Bits Per Second (Onsite)                                         | 2-5588                                | n.a.              |                            |
| 1200 to 2400 Bits Per Second (Offsite)                                         |                                       |                   | 252-5588                   |
| 9600 to 19.2K Bits Per Second (Offsite)                                        |                                       |                   | 252-4726                   |
| <b>Argonne ESnet Dial-Up</b>                                                   |                                       |                   |                            |
| 300 to 19.2K Bits Per Second                                                   | 2-7920                                | n.a.              | 252-7920                   |

## COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

|                       | MVS JES3<br>Batch,<br>Wylbur,<br>and TSO | VM/XA                        | VMS                          |
|-----------------------|------------------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00             | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                              | 00:00-24:00                  | 00:00-24:00                  |

\*\* Service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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Argonne National Laboratory  
Computing and Telecommunications Division  
November and December 1992

**COMPUTING CENTER CLASSES**

The Computing and Telecommunications Division (CTD) is offering eight classes. For information about a class, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). To register for a class, see your Training Management System (TMS) representative. A copy of the "Enrollment Form" is on page 6 and a list of TMS representatives is on page 7 of the Human Resources *Program and Course Guide* (Summer 1992 Update). Also, a copy of the "Enrollment Form" appears below. All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD may reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class. If necessary, CTD will schedule additional classes. If you cannot attend a class, please cancel your reservation at least *one week* before the class. Since the space in some classes is limited, there will be no refund for those who register for a charged class but do not attend.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

**ENROLLMENT FORM**

**Instructions:**

Photocopy this form, complete it, and give it to your TMS Representative.

Please enroll me in the following course(s):

| Course Number | Course Name | Date/Time |
|---------------|-------------|-----------|
| _____         | _____       | _____     |
| _____         | _____       | _____     |
| _____         | _____       | _____     |

Name \_\_\_\_\_ Badge \_\_\_\_\_

Division/Department \_\_\_\_\_ Building \_\_\_\_\_ Location \_\_\_\_\_ Phone \_\_\_\_\_

Division/Department Approval \_\_\_\_\_  
(If required)

Divisional Overhead Account \_\_\_\_\_  
(Required for select courses - see course description)

**NOTE: Forward Divisional Overhead Account Information to OD/EEP, Human Resources.**

### **INTRODUCTION TO THE ANDREW FILE SYSTEM (AFS) (COURSE #637)**

Goals: To learn the basic concepts of AFS and the differences between AFS and the regular Unix file systems.

Length of Class: One 3-hour session

Dates and Times: Section 1: November 5, 1992 (Thursday), 9:00 a.m. to 12:00 noon  
Section 2: December 3, 1992 (Thursday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-142

Instructor: Pete Bertoncini

Charge: \$25

### **INTRODUCTION TO THE ANDREW FILE SYSTEM (AFS) FOR SYSTEM ADMINISTRATORS (COURSE #638)**

Goals: To learn about additional concepts, the installation alternatives for different workstation configurations, and the details of AFS Client administration.

Prerequisite: "Introduction to the Andrew File System (AFS)" course

Length of Class: One 3-hour session

Dates and Times: Section 1: November 6, 1992 (Friday), 9:00 a.m. to 12:00 noon  
Section 2: December 4, 1992 (Friday), 9:00 a.m. to 12:00 noon

Location: Building 221, Room A-142

Instructor: Pete Bertoncini

Charge: \$25

### **USING THE EMACS EDITOR IN UNIX (COURSE #616)**

Goals: To learn how to use the GNU EMACS editor (including the fundamentals of editing text, C code, Fortran code, and TeX documents). To learn how to compile under EMACS, to invoke shells, to edit the directory, to use mail, to use a single source file to produce man pages and TeX source, and to customize the editor.

Length of Class: One 3-hour session

Date and Time: November 11, 1992 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Instructor: Henry Kono

Charge: \$25

To register for a class, see your TMS representative.

### USING THE VI EDITOR IN UNIX (COURSE #619)

Goals: To learn to use the vi interactive text editor effectively.

Length of Class: One 3-hour session

Date and Time: November 12, 1992 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructor: Steve Karlovsky

Charge: \$25

### INTRODUCTION TO UNIX (COURSE #564)

Goals: To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.

Prerequisite: Working knowledge of Unix editor or concurrent enrollment in "Using the VI Editor in Unix" (Course #619) or "Using the EMACS Editor in Unix" (Course #616).

Length of Class: Two 4-hour lectures with labs

Dates and Times: November 16, 1992 (Monday) and November 19, 1992 (Thursday)  
9:00 a.m. to 2:30 p.m. (Lecture and Lab) with 1 1/2 hour lunch break

Location: Building 221, Room A-142

Suggested Reading: *A Practical Guide to the Unix System* (0-8053-0243-3)

Instructors: Pete Bertoncini  
Steve Karlovsky

Charge: \$50



**USING UNIX WORKSTATIONS AND THE DISTRIBUTED QUEUING SYSTEM (DQS) FOR BATCH COMPUTING (COURSE #617)**

Goals: To learn to use DQS for submitting and managing batch jobs on Unix workstations.

Length of Class: One 3-hour lecture and one 2 1/2-hour lab

Date and Times: December 9, 1992 (Wednesday)  
9:00 a.m. to noon (Lecture)  
1:30 p.m. to 4:00 p.m. (Lab)

Location: Building 221, Room A-142

Instructor: Larry Rudsinski

Charge: \$25

**DEVELOPING DISTRIBUTED FORTRAN AND C APPLICATIONS (COURSE #639)**

Goals: To learn how to use readily available parallel support libraries in writing distributed applications.

Length of Class: One 6-hour session

Date and Time: December 11, 1992 (Friday), 9 a.m. to 4:30 p.m. with 1 1/2 hour lunch break

Location: Building 221, Room A-142

Instructor: Steve Karlovsky

Charge: \$50

**GETTING STARTED WITH THE ADVANCED VISUALIZATION SYSTEM (AVS) (RESCHEDULED) (COURSE #618)**

Goals: To learn how to set up and use AVS, how to create input files for AVS, and how to use the AVS module-network editor.

Length of Class: One 3-hour lecture with optional lab

Date and Times: December 14, 1992 (Monday)  
9:00 a.m. to noon (Lecture)  
1:30 p.m. to 4:00 p.m. (Lab)

Location: Building 221, Room A-142

Instructor: Fred Dech

Charge: \$25

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

| Course Name | Course Title                                |
|-------------|---------------------------------------------|
| SLFTEACH    | Introduction and Advanced Concepts of Xedit |

### DEC CBT Courses on the Central VAX 6410 (node ANLCV1)

(Enter RUN "course name" at the DCL level.)

|         |                                               |
|---------|-----------------------------------------------|
| VMSCAI  | Introduction to VAX/VMS                       |
| LSECAI  | Introduction to the Language Sensitive Editor |
| EVECAI  | Introduction to the Extensible VAX Editor     |
| DTRCAI  | Datatrieve for Users                          |
| DTRPCAI | Datatrieve for Programmers                    |





Argonne National Laboratory  
Computing and Telecommunications Division Rates  
October 1, 1992

The *mission* of the Computing and Telecommunications Division (CTD) is to provide the overall *Information Resources Management* infrastructure for Argonne National Laboratory's scientific and technical programs and administrative functions.

The primary *goal* of CTD is to establish and promote a *seamless environment* where individual researchers and workers can easily access and use all elements of the ANL information resources hierarchy, independent of the diverse computer and telecommunications technologies they choose to use.

### GENERAL INFORMATION

*Eligible users.* The computing and telecommunications services provided at Argonne National Laboratory are generally available to all members of the Laboratory; DOE and other U.S. Government agencies are served by arrangement. In addition, other not-for-profit organizations may apply for permission to use these computing services. Commercial firms are generally not eligible to use Argonne National Laboratory computing services.

*Shifts.* The week is divided into the following three shifts:

|           |                                                                      |
|-----------|----------------------------------------------------------------------|
| Prime     | Monday through Friday, 7:00 a.m. to 7:00 p.m.                        |
| Overnight | Monday through Friday, 7:00 p.m. to 7:00 a.m. the following morning. |
| Weekend   | Saturday 7:00 a.m. to Monday 7:00 a.m. and Holidays.                 |

Periods may be preempted for maintenance, housekeeping, and systems time, especially during the overnight and weekend shifts; unavailability is announced when possible the afternoon before scheduled periods of unavailability.

*Service premiums.* Some of the charges for batch computing services listed here include service premiums (that is, MVS batch and VMS batch). During each shift, at least two levels of service are available: (1) an expedited service and (2) a regular service. Users select the level of service they require and indicate their requests by specifying CLASS= on MVS JOB cards or the appropriate batch queue on the SUBMIT command in VAX/VMS. We measure service as the delay between the time the job is submitted and the time it begins execution. The computer operating system and computer operators schedule jobs to satisfy users' requests for service.

*Special arrangement jobs.* Special arrangements are necessary to schedule jobs that exceed established scheduling limits for time and/or memory resource allocations or that need special operator attention to schedule for other reasons. Users with these special jobs need to call User Services. User Services will determine if the jobs can be processed with special arrangements or not. User Services will then arrange with Computer Operations for scheduling approved special jobs.

*Surcharge to non-ANL users.* Outside users with computer accounts funded by DOE but not by ANL incur a surcharge of approximately 26 percent. The surcharge for DOE-affiliated users outside the Laboratory is analogous to the overhead charge incurred by programmatic divisions for Laboratory general administrative expense. Outside computer users not affiliated with DOE incur a nonadditive combination of surcharges for Laboratory general administrative expense, Laboratory general depreciation, depreciation of computing equipment, and DOE administrative expense. Such outside users with computer accounts funded neither by DOE nor by ANL incur accumulated surcharges of approximately 60 percent. Users should consult with CTD before making plans or commitments that require specific services or resources.

*Refund policy.* A computer user is entitled to a refund of charges for resource usage that occurred as a result of hardware failure, system software failure, error on the part of the CTD staff, or similar circumstances beyond the user's control. The refund will not cover the parts of the job that can reasonably be skipped or suppressed in the rerun. Refunds of less than \$50 are not processed. Regardless of the cause of the failure, *no more than 15 minutes worth of CPU time will be refunded for a batch job*; users with programs that require more than 15 minutes for computation should save intermediate results at least every 15 minutes for recovery purposes in case of failure. Users are responsible for backing up their own datasets; refunds will not be given for the cost of recreating lost or damaged datasets. Refunds are also not provided for I/O errors on personal tape reels. To apply for a refund, fill out a "Computer Refund Request" form (available from the Consulting Office) and send it with adequate supporting evidence to the Consulting Office. Your request will be reviewed; and, if a refund is due, it will be applied to your account.

### COMPUTER MANUALS

Users may purchase computer manuals at the Document Distribution Counter in Building 221, Room A-134, or may order manuals by calling extension 2-5405. Please consult *Recommended Documentation for Computer Users at ANL* (ANL/TM 379), for information on our policies, procedures, and recommendations. The charge for computer manuals is based on their direct cost plus an amount for ordering, inventory, and handling costs. In general, CTD does not stock documents that cost \$80.00 or more and will order them only upon request.

### INTERACTIVE SERVICES

| *UNIX (SUN AND IBM RS6000).* Unix provides an environment for programming and production computing. Users who commit annually to purchase a fraction of a system (that is, 144 CPU hours per month) use those resources at a reduced CPU rate.

| *DEC VMS (VAX Cluster).* The Digital Equipment Corporation VMS system is an easy-to-use environment for interactive programming and screen-oriented applications. The VAX 6410 and 8700 have a range of modern programming tools, scientific libraries, and database systems oriented to (but not limited to) scientific and engineering applications.

| *IBM VM/XA CMS (IBM 3084).* VM/XA is an efficient, easy-to-learn interactive system for executing programs. It has a separate file system; but it has a link to submit jobs to, and retrieve output from, the batch systems. Many useful applications programs, compilers, and utilities can be used interactively in VM/XA; and batch programs can be developed in VM/XA and then installed for production in MVS batch without change.

| *ACS WYLBUR (IBM 3084).* Wylbur is an efficient, easy-to-learn interactive system for editing files and managing MVS batch jobs. It shares access to most disks used by MVS batch jobs; and it submits jobs to, and retrieves output from, the MVS batch system. Wylbur does not execute programs such as Fortran or user applications. Wylbur charges are predominated by session time and include very little CPU time for typical user work; the CPU time rates are set to compensate for Wylbur's underreporting of the user's CPU use.

| *IBM CICS/VS (IBM 3084).* IBM's Customer Information Control System (CICS) is a general-purpose database and data-communication processing system that provides several of Argonne's administrative computing applications. The Laboratory's Personnel and Payroll Systems, the Medical System, and the Argonne Materials Ordering System (AMOS) are presently using CICS for online inquiry and updating of information contained in their application databases. User access to these CICS application software packages is authorized on an application-by-application basis.

| *IBM MVS TSO (IBM 3084).* MVS TSO has been installed with the Interactive System Productivity Facility (ISPF) and the VS Fortran interactive debugger. We do not plan to offer TSO introductory courses and consulting services.



## BATCH SERVICES

| *UNIX DISTRIBUTED QUEUING SYSTEM (DQS).* Under development.

| *DEC VAX CLUSTER QUEUES.* The Digital Equipment Corporation VMS system batch services are entirely compatible with VMS interactive applications that do not require terminal input. The batch service classes are obtained by submitting jobs to the following queues with the **SUBMIT** command:

| *W\_BATCH.* The W\_BATCH queues provide regular batch service at any time of day. The SHORT\_W\_BATCH queue is the default queue if none is specified. The SHORT\_W\_BATCH queue has a maximum time limit of 15 minutes. The W\_BATCH queue has a maximum time limit of six hours. The SPECIAL\_W\_BATCH queue is available for jobs requiring special handling (such as longer time limits or large physical memory).

| *IBM MVS SP (IBM 3084).* We offer two classes of MVS batch service: expedited and regular (see Table 2).

*Class U Expedited Batch.* Class U provides expedited batch service within a few minutes anytime of day, comparable to response from interactive systems.

*Class W Regular Batch.* Class W provides regular batch service within a few hours anytime of day. This class is the default.

## Central Processing Charge Algorithm

$$SS * [(CPU * R_1) + (I/O * R_2)]$$

Where:

SS = Class of Service (See Table 2)

CPU = CPU Hours Used

I/O = Thousands of Input/Output Requests Issued

$R_1$  = Central Processor Rate (See Table 1) per CPU hour

$R_2$  = Input/Output Transfer Charge (See Table 1) per thousand

Table 1: Central Processing Rates per CPU Hour

|                                  | $R_1$<br>Central<br>Processor | $R_2$<br>Input/Output<br>Transfers |
|----------------------------------|-------------------------------|------------------------------------|
| IBM 3084 (VM and MVS)            | \$380.00                      | \$0.40                             |
| DEC VAX 6410 and 8700            | 54.00                         | 0.40                               |
| IBM RS6000 Cluster (Uncommitted) | 10.00                         | ---                                |
| IBM RS6000 Cluster (Committed)   | 6.00                          | ---                                |
| Sun Workstation Cluster          | 10.00                         | ---                                |



Table 2: Class of Service

| Class                              | Prime | Overnight | Weekend |
|------------------------------------|-------|-----------|---------|
| IBM Batch                          |       |           |         |
| U                                  | 2.00  | 2.00      | 2.00    |
| W                                  | 1.00  | 1.00      | 1.00    |
| IBM Interactive                    |       |           |         |
| CICS, CMS, TSO                     | 2.00  | 2.00      | 2.00    |
| Wylbur                             | 6.00  | 6.00      | 6.00    |
| DEC VAX Batch (6410 or 8700)       | 1.00  | 1.00      | 1.00    |
| DEC VAX Interactive (6410 or 8700) | 2.00  | 2.00      | 2.00    |

*DIRECT ACCESS STORAGE*

The Andrew File System (AFS) service is a central network file system for Unix and VMS systems that uses Kerberos security and caching for improved network performance. Charges for AFS, MVS, etc. reflect the costs of the associated storage technology. Levels of service<sup>1</sup> depend on disk back-ups (full volume and incremental), file restores, user administration, and troubleshooting needed to achieve desired reliability and availability. Local AFS Disk Management requires customers to purchase their own disks and to have them connected to the central AFS server. Remote AFS Disk Management requires customers to purchase their own disk drives and to connect them to their own host platforms. The central AFS server will manage these disks. Because the disks are remotely located (increasing the number of possible failure points), CTD expects greater effort will be necessary to address problems.

| Resource                                                                                             | Unit         | Rate     |
|------------------------------------------------------------------------------------------------------|--------------|----------|
| Andrew File System (AFS) Subscription Fee                                                            | User Month   | \$ 15.00 |
| Andrew File System (AFS) Disk Storage                                                                | Megabyte Day | 0.10     |
| AFS User System Management (Local)                                                                   |              |          |
| Level I Service                                                                                      | Month        | 200.00   |
| Level II Service                                                                                     | Month        | 400.00   |
| Level III Service                                                                                    | Month        | 600.00   |
| AFS User System Management (Remote)                                                                  |              |          |
| Level I Service                                                                                      | Month        | 250.00   |
| Level II Service                                                                                     | Month        | 500.00   |
| Level III Service                                                                                    | Month        | 750.00   |
| MVS Disks, CMS Virtual Disks (Minidisk), VMS Permanent Disks, and Sunserver Permanent Disks          | Megabyte Day | 0.12     |
| CMS Minidisk, MVS Dataset, and VMS File, AFS Directory, and Fileserver Restoration from Back-Up Tape |              | 40.00    |

<sup>1</sup> Levels currently being defined.

*PERIPHERAL, JOB, AND NETWORK SERVICES*

These charges do not vary by shift and service level.

| <i>Resource</i>                                             | <i>Unit</i>    | <i>Rate</i> |
|-------------------------------------------------------------|----------------|-------------|
| IBM/CMS, VAX/VMS, TSO, and Wylbur Interactive Session Time  | Hour           | \$ 1.00     |
| Library OPAC Terminal Connections                           | Terminal Month | 13.00       |
| Batch Job Setup Charge                                      | Job            | 0.25        |
| Tape Setup                                                  | Tape           | 1.50        |
| Output Printing                                             | Thousand Lines | 0.75        |
| Remote Printing (VM Print Image Files and Microfiche)       | Thousand Lines | 0.25        |
| Files Transferred as Card Images (Includes Remote Punching) | Thousand Cards | 0.25        |
| DatagraphiX AutoCOM II (ANLVM.FICHE)                        | Fiche          | 1.25        |
| VAX Cluster Print Queue Set-Up Fee                          | One-Time       | 50.00       |
| VAX Cluster Print Queue Subscription Fee <sup>2</sup>       | Printer Month  | 15.00       |
| QuickMail License and Installation Fee                      | One-Time       | 100.00      |
| Access to Central QuickMail Server                          | User Month     | 10.00       |

*RECORDING SERVICES FOR COMPUTER-GENERATED ANIMATIONS*

| Rates for video recording services for computer-generated animation are organized into three categories according to the level of complexity. Rates apply to individual recording sessions. Please call extension 2-5776 to schedule work a few days in advance of when you need your animation. Allow more time if post-production editing is desired. Turnaround is subject to workload.

|                                                                                          |             |
|------------------------------------------------------------------------------------------|-------------|
| Basic Video Recording                                                                    | \$35.00     |
| - Records continuously                                                                   |             |
| - Records entire graphics display screen                                                 |             |
| - Includes VHS media (up to 20 minutes length)                                           |             |
| Moderate Customization Recording                                                         | \$70.00     |
| - Includes centering or positioning of image                                             |             |
| - Includes scaling of image to optimum screen size                                       |             |
| - Records continuously                                                                   |             |
| - Includes VHS media (up to 20 minutes length)                                           |             |
| High Customization Recording                                                             | \$140.00    |
| - Precision frame-by-frame recording only of selected frames                             |             |
| - Includes options to vary viewing speed                                                 |             |
| - Includes scaling of image to optimum screen size                                       |             |
| - Includes positioning and centering                                                     |             |
| - Includes VHS media (up to 20 minutes length)                                           |             |
| Optional Services                                                                        |             |
| Inclusion of basic text screen                                                           | \$15.00     |
| Each additional 20 minutes of recorded media                                             | \$35.00     |
| Substitute 3/4" SP media for VHS                                                         | \$10.00     |
| - Argonne Film and Video Group, Building 222, requires 3/4" SP format                    |             |
| Post production editing (contact Argonne Film and Video Group, extension 2-7451)         |             |
| - Includes complex text frames                                                           |             |
| - Music background                                                                       |             |
| - Narration                                                                              |             |
| - Sound editing                                                                          |             |
| CTD coordination of computer animations for Argonne Film and Video Group post production | \$65.00/hr. |
| Custom graphics programming                                                              | \$65.00/hr. |
| 35mm slides of selected frames                                                           | \$9.00 ea.  |

| <sup>2</sup> In addition to the monthly user charge, users will incur Remote Printing charges.

*POSTSCRIPT GRAPHICS OUTPUT*

| <i>Resource</i>                                                                          | <i>Unit</i> | <i>Rate</i> |
|------------------------------------------------------------------------------------------|-------------|-------------|
| Large Format Color Plot (ANLCC)                                                          | Plot        | \$15.00     |
| Large Format Black-and-White Plot (ANLCCBW)                                              | Plot        | 10.00       |
| 35mm Slide (ANLSLIDE)                                                                    | Slide       | 5.00        |
| Color Seiko 8.5-by-11 Paper (ANLCLRP1)                                                   | Page        | 1.75        |
| Color Seiko 8.5-by-11 Transparency (ANLCLRT1)                                            | Page        | 3.00        |
| HP LaserJet III SI (ANLBWP1)                                                             | Page        | 0.18        |
| Surcharge for Improperly Identified Output Requiring Manual<br>Distributing and Charging | Job         | 3.00        |

*MISCELLANEOUS SOFTWARE, ACCESS, AND USAGE CHARGES*

|                                                                                                                                                        |                   |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|
| Basic Access Charge (monthly user and cost center access charge) is for:                                                                               | Cost Center Month | \$200.00 |
| -Access to the online ANLPHONE directory in CMS, VAX/VMS,<br>  Unix, and AppleTalk                                                                     |                   |          |
| -Activities to enable access to administrative systems in CICS<br>  (e.g., the Hydra Protocol Converter, Kermit scripts, and<br>  tn3270 key mappings) |                   |          |
| -Access to Laboratory-wide electronic post office and server<br>  for E-mail addresses of the form name@anl.gov                                        |                   |          |
| -Activities to enable access to network output services                                                                                                |                   |          |
| -Access to public workstation room                                                                                                                     |                   |          |
| -Access to PROFS calendars and electronic mail                                                                                                         |                   |          |
| ANSYS Software Package                                                                                                                                 | CPU Minute        | 2.04     |
| Staff Effort (Management Information Systems)                                                                                                          | Hour              | 57.00    |
| Staff Effort (Systems Programming, User Services, Computer Networks)                                                                                   | Hour              | 65.00    |
| File Server Subscription Fee (Unix, AlisaShare, etc.)                                                                                                  | User Month        | 15.00    |

*TAPE LIBRARY SERVICES*

Storing a copy of a library tape in another building provides library tape disaster protection in the event the CTD tape library in Building 221 is destroyed, as a copy of a user's critical data remains intact. Users who have personal tapes they use in their own building (not Building 221) can store a copy of these tapes in Building 221 as a personal tape to achieve the same level of disaster protection.

All CTD tapes (reels or cartridges) are considered part of the CTD library and are not available for temporary use outside of CTD. Instead, users should purchase tapes for use outside of CTD from Argonne stock or other suppliers. Data on library tapes in CTD can then be copied onto personal tapes for use outside of CTD. When users no longer need the data in CTD, they can release the library tape. If, however, users decide to purchase a tape from CTD, the rate shown applies to cover the cost to replace and prepare another tape for use in the CTD library.

| <i>Resource</i>                              | <i>Unit</i>   | <i>Rate</i> |
|----------------------------------------------|---------------|-------------|
| Storage Slot Rental                          |               |             |
| Library Tape Reel                            | Tape Slot Day | \$ 0.10     |
| Library Cartridge (IBM 3480 or 8mm Type)     | Tape Slot Day | 0.05        |
| Library Tape Disaster Protection             | Tape Slot Day | 0.20        |
| Personal Tape                                | Tape Slot Day | 0.20        |
| Tape                                         |               |             |
| Purchase of Cleaned/Tested Tape Reel         | Tape Reel     | 35.00       |
| Purchase of Cartridge (IBM 3480 or 8mm Type) | Cartridge     | 12.00       |
| Maintenance for User-Owned Tape Reels        |               |             |
| Cleaning User-Owned Tape Reels               | Tape          | 3.00        |
| Cleaning and Testing User-Owned Tape Reels   | Tape          | 20.00       |



*DATA COMMUNICATIONS SERVICES*

| <i>Resource</i>                                                | <i>Unit</i>      | <i>Rate</i> |
|----------------------------------------------------------------|------------------|-------------|
| ANL/FNAL Microwave Access Charge                               | User Month       | \$ 75.00    |
| Asynchronous Ports (Dial-Up Only)                              |                  | 0.48        |
| X.25 Multiplexer Port, 1,200 to 9,600 Bits Per Second          | Line Month       | 230.00      |
| IBM 3277 Local Attachment                                      | Port Month       | 130.00      |
| Binary Synchronous Ports                                       |                  |             |
| 1,200 to 9,600 Bits Per Second Dedicated (Station ID and Port) | Port Month       | 160.00      |
| 19.2 Kilobits Per Second Dedicated (Station ID and Port)       | Port Month       | 220.00      |
| 50 to 56 Kilobits Per Second Dedicated (Station ID and Port)   | Port Month       | 285.00      |
| 2,000 or 4,800 Bits Per Second Dial-Up (One Station ID)        | Station Month    | 110.00      |
| Additional Station IDs, Dedicated or Dial-Up                   | Station ID Month | 45.00       |
| Peer-to-Peer File Transfer Network Connection                  |                  |             |
| 1,200 to 9,600 Bits Per Second (Station ID and Port)           | Port Month       | 450.00      |
| Multiuser NJE Routing Through Central VAX <sup>3</sup>         | System Month     | 260.00      |
| RADS Remote Job Entry Station (Station ID and Port)            | Station Month    | 1,200.00    |
| Printerm Maintenance                                           | Month            | 35.00       |
| DECwriter III Maintenance                                      | Month            | 35.00       |
| Vadic Modem 1,200 Bits Per Second Maintenance                  | Month            | 20.00       |
| Dedicated Terminal Server Port                                 | Port Month       | 80.00       |
| Dedicated Terminal Server Port Set-Up Fee                      | One Time         | 1,100.00    |

*PRIVATE BRANCH EXCHANGE (PBX) SERVICES*

| <i>Resource</i>                                                   | <i>Unit</i>       | <i>Rate</i>  |
|-------------------------------------------------------------------|-------------------|--------------|
| Basic Station Service (Analog/Digital Line)                       | Month             | \$40.00      |
| Service Order Processing (Physical Move, Add, or Change)          | Each              | 50.00        |
| Dedicated Onsite Circuit Terminations                             | Month             | 4.00         |
| Dedicated Fiber Optic Terminations                                | Termination Month | 50.00        |
| Voice Mail                                                        | Mailbox Month     | 3.25         |
| Measured Services                                                 |                   |              |
| Federal Telecommunications Service (FTS)                          | Minute            | 0.21         |
| Local Measured Service (Area Codes 312, 708, and Portions of 815) | Minute            | <sup>4</sup> |
| Long Distance Service (National and International)                | Minute            | <sup>4</sup> |
| Miscellaneous Commercial Communications Vendor Services           |                   | <sup>5</sup> |
| Lemont Main Numbers                                               |                   |              |
| Private Dedicated Lines                                           |                   |              |
| Cellular Telephone Usage                                          |                   |              |
| Other Offsite Services                                            |                   |              |

<sup>3</sup> In addition to the monthly user charge, users will also incur file transfer charges (see "Peripheral, Job, and Network Services").

| <sup>4</sup> These calls will be rated and billed at approximately 85 percent of AT&T and IBT tariffs with respect to distance, time of day, and length of call.

<sup>5</sup> Commercial communications vendors provide the listed telecommunication services and bill CTD. CTD bills the monthly costs of these services to the using organization according to the vendor supplied invoice.

| <i>Resource</i>                                                  | <i>Unit</i> | <i>Rate</i> |
|------------------------------------------------------------------|-------------|-------------|
| Station Equipment                                                |             |             |
| Telephone Instruments                                            |             |             |
| Single-Line Analog Telephone                                     | Month       | \$ 1.00     |
| Display (Alpha/Numeric Add-On to ITE)                            | Month       | 2.75        |
| ITE 4 Telephone (1 Line, 4 Button)                               | Month       | 2.00        |
| ITE 12 Telephone (8 Line, 12 Button)                             | Month       | 6.00        |
| ITE 12S Telephone (8 Line, 12 Button,<br>Speakerphone)           | Month       | 7.00        |
| ITE 12SD Telephone (8 Line, 12 Button,<br>Speakerphone, Display) | Month       | 10.00       |
| ITE 24 Telephone (18 Line, 24 Button,<br>40 Character Display)   | Month       | 17.50       |
| Miscellaneous Equipment                                          |             |             |
| Cellular Telephone Rental (\$20.00 Set-Up Charge & Usage)        | Day         | 2.00        |
| Speakerphone (External)                                          | Month       | 4.00        |
| Remote Billing Station (Lodging Only)                            | Month       | 130.00      |
| Other Miscellaneous Station Equipment                            | Month       | 2.00        |
| Digital Data Interface Equipment                                 |             |             |
| Asynchronous                                                     |             |             |
| ADI 100 Asynchronous Data Interface                              | Month       | 4.00        |
| ACI 100 Asynchronous Data Interface (Hayes Type)                 | Month       | 7.50        |
| ADI 101A Rack-Mounted Asynchronous Data Interface                | Month       | 3.50        |
| ADI 101A Rack Cabinet                                            | Month       | 8.00        |
| ADI 101A Shelf                                                   | Month       | 5.50        |
| Synchronous                                                      |             |             |
| DIU-2 Synchronous Data Interface w/o Phone                       | Month       | 19.00       |
| Ethernet                                                         |             |             |
| DOB-4 for Ethernet Service with ITE 12                           | Month       | 19.50       |
| LDI 400/DIU-4 for Ethernet Service without Telephone             | Month       | 25.50       |
| LDI 410/DIU-5 LANmark Ethernet Gateway                           | Month       | 45.00       |
| IBM 3270                                                         |             |             |
| DOB-6 for LANmark 3270 with ITE 12                               | Month       | 22.00       |
| LDI 700/DIU-6 for LANmark 3270 without Telephone                 | Month       | 18.50       |







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# ARGONNE COMPUTING NEWSLETTER

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AT URBANA-CHAMPAIGN

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**ESH** "First Among Equals"  
Only you can do it!

# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-252-5983

The *mission* of the Computing and Telecommunications Division (CTD) is to provide the overall *Information Resources Management* infrastructure for Argonne National Laboratory's scientific and technical programs and administrative functions. The primary *goal* of CTD is to establish and promote a *seamless environment* where individual researchers and workers can easily access and use all elements of the A information resources hierarchy, independent of the diverse computer and telecommunications technologies they choose to use.

|                                             |                          | Room  | Phone  | Electronic Mail Address |
|---------------------------------------------|--------------------------|-------|--------|-------------------------|
| Division Director                           | Mike Boxberger (Interim) | A251  | 2-7155 | boxberger@anl.          |
| Computer Protection Program Manager         | Jean Troyer              | A240  | 2-7440 | ljtroyer@anl.           |
| Computing and Telecommunications Operations | Larry Amiot              | A237  | 2-5432 | amiot@anl.              |
| Computer Network                            | Bob McMahon              | B239  | 2-7270 | mcmahon@anl.            |
| Data Communications                         | Linda Winkler            | B251  | 2-7236 | lwinkler@anl.           |
| Service Engineering                         | Paul Phillips            | D156  | 2-4343 | phillips@anl.           |
| Network and Computer Operations             | Gary Schlesselman        | A113  | 2-5437 | cgselman@anl.           |
| Day and Weekend Operation                   | Bob Bilshausen           | A134  | 2-5421 |                         |
| Document Distribution Counter               |                          | A134  |        |                         |
| Evening and Overnight Operation             | Mike Monczynski          | A134  | 2-5421 |                         |
| Tape Librarian                              | Sandra Vasko             | A134  | 2-7681 | vasko@anl.              |
| Trouble Reporting                           |                          | A134  | 2-5421 | noc@anl.                |
| Systems Programming                         | John Volmer              | B211  | 2-5449 | volmer@anl.             |
| Telephone Services                          | Allen Winter             | B247  | 2-2764 | anwinter@anl.           |
| User Services                               | Fred Moszur              | A121  | 2-7419 | fredm@anl.              |
| Computer Use Authorizations                 | Fran Carnaghi            | A147  | 2-5425 | carnaghi@anl.           |
| Consultants                                 |                          | A139  | 2-5405 | consult@anl.            |
| Documentation Advice                        |                          | A139  | 2-5405 | consult@anl.            |
| Education and Assistance                    | Pete Bertoncini (Acting) | E101  | 2-4827 | pjb@anl.                |
| Management Information Systems              | Diane O'Brien            | B151  | 2-7167 | deobrien@anl.           |
| Financial Systems                           | Nick Moore               | C115D | 2-8075 | nickm@anl.              |
| Human Resource Systems                      | Bob Hischier             | B147  | 2-7272 | hischier@anl.           |
| Information and Production Services         | Miriam Bretscher         | B139  | 2-7252 | mebretscher@anl.        |
| Materials and Plant Systems                 | Rich Slade               | B255  | 2-7329 | rgslade@anl.            |
| Planning, Finance, and Administration       | Mike Boxberger           | A245  | 2-5638 | boxberger@anl.          |
| Scientific Applications and Research        | Charles Mueller          | A231  | 2-7153 | cjmueller@anl.          |
| Software Management Program                 | Dennis Tussing           | B228  | 2-4656 | dtussing@anl.           |

The Division operates an Andrew File System consisting of several Sun servers, an IBM 6000 RISC cluster, a Sun 4/490 with Sun OS 4.1.2, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.5, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM 3084 computer includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and ACS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

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## COMPUTING COMMENTS

### **HUMAN RESOURCES REVISES AND CORRECTS E-MAIL ADDRESSES IN THE HRS DATABASE**

In preparation for the revision of the *Argonne Directory*, CTD will give special attention to the employee electronic mail address field in the Human Resources Personnel database. CTD will

1. Convert electronic mail addresses that do not already conform to the standard Internet address convention. The convention is the string "userid@internetnode" with no intervening blanks (that is, no " at " and no " @ " and a fully qualified Internet nodename).
2. Correct obviously incorrect addresses that can be corrected easily.
3. Leave out electronic mail addresses that are incorrect and have no clear correct address.

The above revisions will be complete by December 8, 1992. Divisions will be verifying employee records for the HRS personnel database. Please verify that your E-mail address is correct; the online ANLPHONE files contain the current HRS E-mail addresses. CTD encourages users to register a nickname with the Argonne electronic mail post office to establish an address of the form nickname@anl.gov that is easily remembered and communicated to others. See "Now Open--The Argonne Electronic Mail Post Office!" in the May 1992 *Newsletter*.

### **COMPUTING SERVICES DURING CHRISTMAS THROUGH NEW YEAR'S PERIOD**

From 7:00 a.m. on Thursday, December 24, 1992, until 7:00 a.m. on Monday, January 4, 1993 (except for two 24-hour periods, Christmas and New Year's), users can expect service equivalent to regular weekends. An operator will be available to respond to tape mount requests, to distribute printed output, to assist users, and to restart failed systems. There will be no scheduled development of 35mm slides. However, operators can record your images on a separate roll of film that you can make your own arrangements to develop. If you need this service, notify the operator at extension 2-5421 before the images are queued.

From 4:30 p.m. on December 24 until 4:30 p.m. on December 25 and again from 4:30 p.m. on December 31 until 4:30 p.m. on January 1, Building 221 will be locked, and no operator will be available to provide service. The A-142 Workstation Room will also be locked. During this time, users who need to retrieve output distributed to bins in Building 221 will have to get a key at the Northgate Road entrance.

Users with special requirements for computing services during this period should call the User Services consultants at extension 2-5405 as soon as possible to allow time to arrange for these needs.

### **COMPUTING CLASSES SCHEDULED FOR DECEMBER 1992 AND JANUARY 1993**

During December 1992 and January 1993, the Computing and Telecommunications Division (CTD) will offer 14 classes. The complete schedule (with course numbers and fees) is appended to this *Newsletter*. For information about a class, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). To register for a class, see your Training Management System (TMS) representative. A copy of the "Enrollment Form" is on page 6 and a list of TMS representatives is on page 7 of the *Human Resources Program and Course Guide* (Fall/Winter 1992). Also, a copy of the "Enrollment Form" appears with the class schedule appended to this *Newsletter*. All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD may reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class. If necessary, CTD will schedule additional classes. If you cannot attend a class, please cancel your reservation at least *one week* before the class. Since class space is limited, there will be no refund for those who register for a charged class but do not attend.

*Introduction to the Andrew File System (AFS)* (one 3-hour session) provides an introduction to the use of the Andrew File System (AFS) at Argonne. Topics include an overview of basic concepts, a description of the Argonne Laboratory-wide AFS cell, alternatives in accessing AFS, logging in and authenticating, accessing and protecting directories and files, and differences between AFS and the regular Unix file systems. There is a \$25 charge for the class.

*Introduction to the Andrew File System (AFS) for System Administrators* (one 3-hour session) is an extension of the "Introduction to the Andrew File System (AFS)" course for the benefit of workstation administrators. Topics include an overview of additional concepts, considerations for system administrators, installation alternatives for different workstation configurations, and details of AFS Client administration. There is a \$25 charge for the class.

*Using Unix Workstations and the Distributed Queuing System (DQS) for Batch Computing* (one 3-hour lecture and one 2 1/2-hour lab) introduces the Distributed Queuing System (DQS) that CTD has installed and tested on IBM RISC and several Sun workstations. The commands for DQS will be discussed, with emphasis on writing script files that are necessary to submit batch jobs. Students will gain hands-on experience in using DQS during the interactive laboratory session. A working knowledge of Unix is necessary. There is a \$25 charge for the class.

*Developing Distributed Fortran and C Applications* (one 6-hour session) introduces students to the use of readily available parallel libraries in writing distributed applications. Important issues related to parallel processing are discussed, leading to an awareness of what types of codes are strong candidates for distributed parallel execution. Alternative message-passing libraries are discussed, including p4 and PVM.

*Getting Started with the Advanced Visualization System (AVS)* (one 3-hour lecture with optional lab) presents basic features of AVS and instructs new users how to manage the AVS environment to address visualization needs. Topics include data types and data import strategies, use of the Geometry Viewer to interact with and transform geometry objects, basic geometric primitives, and visualization techniques involving these primitives. Participants will learn fundamental concepts of designing modules as well as forming module networks to handle common visualization tasks. Knowledge of Unix and some programming skills will be helpful. There is a \$25 charge for the class.

*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

*Using the Vi Editor in Unix* (one 3-hour session) provides users introductory instruction and hands-on experience with the vi interactive text editor. The vi editor has been provided with Unix-based operating systems for many years, and versions have recently been made available for use under operating systems such as VMS and DOS. Prior Unix experience is not necessary. There is a \$25 charge for the class.

*Using the EMACS Editor in Unix* (one 3-hour lecture and one 2 1/2-hour lab) explains how to use the powerful GNU EMACS editor from the Free Software Foundation. The topics include the fundamentals of editing text, C code, Fortran code, and documents. The advanced topics include compiling under EMACS, invoking shells, editing the directory, using mail, and customizing the editor for standard and X Window systems. There is a \$25 charge for the class.

*Introduction to Unix* (two 4-hour lectures with labs) is an overview of the Unix operating system. Computing users will need some familiarity with Unix to use scientific workstations and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using many useful commands. CTD will establish temporary attendee accounts on the CTD Sun Unix server for the duration of the class. The lab will entail the use of Unix with Sun workstations to reinforce the lecture content. This class assumes knowledge of a Unix editor such as vi or EMACS. There is a \$50 charge for the class.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should have an account on an ANL VAX system before attending the class to access the computer-based instruction courses. To request an account, call Account Servi-



ces at extension 2-5425. There is a \$25 charge for the class.

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour lecture with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS batch jobs; and to review IBM MVS batch output.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals. There is a \$25 charge for the class.

*Using CMS with IBM 3270-Compatible Display Terminals* (two 3-hour lectures with labs) is for CMS users of IBM 3270-compatible display terminals, Sun workstations with tn3270, IBM or Apple Macintosh personal computers with NCSA tn3270, or ASCII terminals with the Hydra Protocol Converter. This class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and TellaGRAF. The labs use Sun workstations with tn3270, but the principles learned will apply to all the terminals and access methods mentioned above. Everyone registering for the CMS class must have a CMS account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

### December 1992

| Sunday | Monday | Tuesday | Wednesday             | Thursday              | Friday                             | Saturday |
|--------|--------|---------|-----------------------|-----------------------|------------------------------------|----------|
|        |        | 1       | 2                     | 9:00<br>AFS<br>(#637) | 9:00<br>AFS<br>Sys Admin<br>(#638) | 5        |
| 6      | 7      | 8       | 9:00<br>DQS<br>(#617) | 9                     | 9:00<br>Parallel Fortran<br>(#639) | 12       |
| 13     | 14     | 15      | 16                    | 17                    | 18                                 | 19       |
| 20     | 21     | 22      | 23                    | 24                    | 25                                 | 26       |
| 27     | 28     | 29      | 30                    | 31                    |                                    |          |

### January 1993

| Sunday | Monday                      | Tuesday | Wednesday                | Thursday               | Friday                                      | Saturday |
|--------|-----------------------------|---------|--------------------------|------------------------|---------------------------------------------|----------|
|        |                             |         |                          |                        | 1                                           | 2        |
| 3      | 4                           | 5       | 6                        | 7                      | 9:00<br>Facilities &<br>Services<br>(#293)  | 9        |
| 10     | 9:00<br>VI Editor<br>(#619) | 12      | 9:00<br>EMACS<br>(#616)  | 9:00<br>UNIX<br>(#564) | 9:00<br>VAX/VMS<br>(#289)                   | 16       |
| 17     | 9:00<br>UNIX<br>(#564)      | 19      | 9:00<br>WYLBUR<br>(#288) | 21                     | 9:00<br>Programming<br>in VAX/VMS<br>(#286) | 23       |
| 24     | 25                          | 26      | 9:00<br>CMS<br>(#273)    | 9:00<br>CMS<br>(#273)  | 9:00<br>AVS<br>(#618)                       | 30       |
| 31     |                             |         |                          |                        |                                             |          |



## MANAGEMENT INFORMATION SYSTEMS

### INTEGRATED FINANCIAL SYSTEM UPDATE

In November 1992, the Office of The Chief Financial Officer closed the financial books in record time. This enabled CTD to process the user financial reports on November 9, 1992, only one day later than the regular monthly schedule.

Additionally, the scientific effort data was processed from the new online effort system for the first time and without any major glitches. Because of this, the Integrated Financial System (IFS) Project Team and Cost Accounting plan to accelerate the phased cutover of the effort system to complete the cutover in December 1992, one month earlier than previously announced.

Progress on all phases of the IFS project will be reported at the Financial Applications committee to Effect Telesis (FACET) meetings held on the third working Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## MVS NEWS

### TAPE MANAGEMENT SYSTEM VERSION 5.0 SCHEDULED FOR DECEMBER 5, 1992

On Saturday, December 5, 1992, CA-1, commonly known as the Tape Management System (TMS), Version 5.0 will become the production tape management system and will replace the current Version 4.7 system. CA-1 Version 5.0 is almost identical in function and appearance to CA-1 Version 4.7; users should notice little difference.

The most conspicuous difference will be in the appearance of expiration dates in the TAPELIBR reports. Below are the changes:

| Type of Expiration Date                                             | Expiration Date Displayed |           |
|---------------------------------------------------------------------|---------------------------|-----------|
|                                                                     | Old                       | New       |
| Permanently Held<br>(never expires)                                 | 99365                     | PERMANENT |
| Catalog Controlled<br>(expires when catalog entry is removed)       | 99000                     | CATALOG   |
| Cycle Controlled<br>(keep xxx cycles of the dataset name)           | 99xxx                     | CYCLE/xxx |
| Volume Managed<br>(ANL convention where expiration date is ignored) | 94365                     | USER/365  |

In addition, the entire online display has been reorganized because of several new items that CA-1 now tracks. Among these new items is the last person to access a tape.

Users with questions on TMS should contact John Volmer at electronic mail address volmer@anl.gov or at (708) 252-5449.

### MVS/XA GOES PRODUCTION ON DECEMBER 12, 1992

On Saturday, December 12, 1992, MVS/XA will become the production MVS system at Argonne and will replace the MVS/SP 1.3.5 system. MVS/XA (formally known as MVS/SP 2.2.3) offers users larger address spaces, up to two gigabytes in size. MVS/SP 1.3.5 has been in use at Argonne since the mid 1980s.

Users should notice no difference between MVS/SP 1.3.5 and MVS/XA. CTD testing has shown nearly all applications operate with no changes. Limited user testing has uncovered very few problems, which have been easily resolved. Management Information Systems (MIS) has successfully tested administrative applications. Those applications that required changes have either been fixed or can be used with minor JCL modifications (for example, Disspla users need to re-link their applications).

Users with questions should contact John Volmer at electronic mail address volmer@anl.gov or at (708) 252-5449.

### UPDATED DFSORT AVAILABLE FOR TESTING IN MVS BATCH

Updated maintenance to Version 1.11.1 of IBM's DFSORT utility is now available for user testing in MVS batch. CTD plans to make this updated maintenance the production version on Monday, February 1, 1993. This maintenance fixes bugs; there is one data integrity fix that IBM recommends installing.

To test the updated DFSORT before Monday, February 1, 1993, enter:

```
//stepname EXEC SORT, LIBRARY='SYS2.SORTLIB'
//SORT.STEPLIB DD DSN=SYS2.SORTLINK, DISP=SHR
```

If there are no major difficulties, this test version of DFSORT will become the production version on Monday, February 1, 1993. At that time, CTD will rename the SYS1 datasets to SYS0 and the SYS2 datasets to SYS1. Users who experience difficulties should contact the User Services consultants at extension 2-5405.

## PERSONAL COMPUTING

### USER SERVICES BETA TESTS MICROSOFT WINDOWS NT

CTD User Services has arranged with Microsoft to beta test its operating system Windows NT (New Technology). This true 32-bit operating system has both preemptive multi-tasking and multiple threads of execution. Compared to MS-Windows V3.1, in which the application has to release the thread of execution before the Central Processing Unit (CPU) can switch tasks, NT can "preempt" the application and switch whenever a higher priority task arrives.

Windows NT beta release also includes the following features:

- Scalable architecture that allows NT to run the Intel 386/486 microprocessor, the MIPS R4000, and the Digital Equipment Corporation (DEC) Alpha chip.
- A robust system that forces all applications to run in their own address space. Windows NT can

access 4 gigabytes of random-access memory (RAM) and several terabytes of disk storage.

- Built-in networking that includes the client and server software for LAN Manager, DEC Pathworks, and IBM LAN Server. Novell has promised Netware connectivity, although it is not in this beta version.
- Advanced security that requires users to log on, whereupon they will find their own environment and access rights. Windows NT is certified at the U.S. government level of C2.
- An optional NT File System (NTFS) that eliminates Disk Operating System (DOS) filename limitations.
- Built-in management tools that include performance monitoring tools and a back-up service.

Windows NT requires high-end machines. The minimum hardware requirements to run the beta version on a personal computer are a 386/25 or better processor, 8 megabytes of RAM, and 60 megabytes of free disk space.

Windows NT has the look and feel of MS Windows V3.1. It runs DOS, the Portable Operating System Interactive eXecutive (POSIX), and Windows V3.1 applications along with 32-bit NT applications. Like Version 3.1, NT users can expect a wide selection of these 32-bit applications from Microsoft and third-party developers when NT is released, which was expected in the first quarter of next year but has recently been pushed back to the first half of 1993.

Dave Cutler, who designed DEC's VAX/VMS system, is the chief architect for Windows NT. Eventually, there will be NT versions for LAN Manager (including the LAN Manager concept of domains), the MS Structured Query Language (SQL) Server, and MS Systems Network Architecture (SNA) Services.

Those interested in Windows NT can contact Jim Regula at electronic mail address [regula@anl.gov](mailto:regula@anl.gov) or at extension 2-7622.



## SCIENTIFIC WORKSTATIONS

### **CTD UPDATES WORKSTATION ROOM IN BUILDING 221, ROOM A-142**

In May 1992, CTD began using Room A-142 as a classroom and installed several additional workstations. When Room A-142 is not reserved for a class, equipment is available for general use. The list of current equipment includes:

Sun IPC Workstations (6)  
Gateway 2000 Personal Computer Model 486DX2/50  
Apple Macintosh IIx (2)  
NCD Color X Terminal  
IBM PS/2 Model 50  
IBM 3180 Terminal  
DEC VT-240 Terminal

The Sun workstations have guest account capability that enables limited usage to access full-screen CMS, Wylbur, TSO, CICS, and the central and divisional VAX/VMS systems. In addition, it is possible to use the guest account to telnet to other remote systems without the benefit of a windowing environment. Also, users with central Unix accounts on the Sun Achilles server or the IBM RS/6000 RISC stations can use those accounts on the Sun IPC workstations. All of the workstations run the Andrew File System (AFS) client software for convenient access to data in AFS.

The Apple Macintoshes have a guest capability that allows access to the AlisaTalk Public Volume.

The available printing capability for workstations in A-142 includes all the output services available next door in the A-134 computer room: HP LaserJet III (ANLBWP1), Seiko color printer (ANLCLRP1, ANLCLRT1), CalComp plotter (ANLCCBW, ANLCC), and Matrix camera (ANLSLIDE).

### **PARALLEL COMPUTATION ON DISTRIBUTED WORKSTATION NETWORKS**

In response to the Laboratory-wide shift toward distributed computing, CTD is promoting capabilities to use a distributed network of workstations as a vehicle for parallel computation.

Message passing libraries are available to implement parallel processing for distributed memory architectures. Both p4 Version 1.2 and Parallel Virtual Machine (PVM) Version 2.4 are publicly accessible in the Andrew File System (AFS) in source form as well as compiled for the Sun 4 and IBM RS/6000 platforms. Through calls to either of these libraries, users may write or modify Fortran and C applications to execute in a parallel fashion on a network of heterogeneous workstations.

The p4 Programming System is under continuing development by Ewing Lusk (Mathematics and Computer Science) and Ralph Butler (University of North Florida). The p4 predecessor was the m4-based "Argonne macros" system. PVM was primarily developed at Oak Ridge National Laboratory by Jack Dongarra and others.

CTD is offering the course "Developing Distributed Fortran and C Applications" on Friday, December 11, 1992. Both p4 and PVM will be presented.

CTD plans to continue working with users to implement parallel applications for workstation networks. For more information, contact Steve Karlovsky at electronic mail address [karlovsky@anl.gov](mailto:karlovsky@anl.gov) or at extension 2-7205.

## SOFTWARE MANAGEMENT

### **SPAUDIT SOFTWARE VERIFIES SOFTWARE ON MICROCOMPUTERS**

The Software Publishers Association (SPA) has made software available free of charge to the Laboratory through CTD. The software (SPAudit) scans the contents of disk drives and generates a list of the resident applications and the respective publisher. The user can then verify that the applications were acquired properly. One can use SPAudit to generate a consolidated list for Laboratory programs, sections, or divisions. This list can be used to verify the divisional software inventory required under the Software Management Program and DOE Order 1330.1D.

The Software Management Program Manager is making SPAudit available to Laboratory users for



both Apple Macintosh and IBM compatible machines. The Apple Macintosh version with instructions is available from the Public Volume. Copies of the IBM version with instructions will be available on the public Disk Operating System (DOS) file system and also will be sent to the Software Management Program Representatives. To request additional copies, call User Services at extension 2-5405. Direct questions about SPAudit or software inventories to your Software Management Program Representative or to the Software Management Program Manager at extension 2-4656.

## TELECOMMUNICATIONS NEWS

### **NEW 800 SERVICE FOR ARGONNE TRAVELERS!**

CTD has established a new 800 Service for Argonne travelers. A Voice Mail application answers the new 800 number and allows travelers to reach their voice mailboxes or the ANL operator. This number should be welcome news to travelers who need to reach their voice mailboxes on weekends and after midnight to receive and send voice mail messages. Travelers will still be able to reach Argonne operators on workdays and evenings to connect to Laboratory extensions or to place outside calls. With twice the number of lines serving the new number, busy conditions should no longer be a problem. Travelers will receive the new easy-to-remember 800 number with their travel papers.

### **ISDN IN 1993**

While ANL's InteCom Integrated Business Exchange (IBX) S80 telephone switch has been providing Integrated Services Digital Network (ISDN)-type services for over five years, actual ISDN service with the outside world has been unavailable to Argonne at any reasonable cost from Illinois Bell Telephone (IBT). IBT has been upgrading their central offices to provide ISDN services primarily in Chicago and the Northwest and West Corridors where greater concentrations of industry provide greater return on their investment. IBT has now accelerated their schedule for upgrading the North Lemont Central Office that serves Argonne. In June 1993, IBT will install a new Northern Telecom Display Management System (DMS) 100

switch. For employees who are not connected to an IBT central office with ISDN, CTD is looking into what options may be available to make ISDN connections from their home.

CTD Telephone Services is working with IBT and with InteCom to establish a direct Primary Rate ISDN link to our Private Branch Exchange (PBX). In early 1993, InteCom will be marketing PBX port cards and ISDN interface equipment to allow switched ISDN service through our own PBX for internal and external calls that can be used for video conferencing at 128 kilobits per second (Kbps). Some Argonne employees are eager to use ISDN to allow high-speed data communications to the Laboratory from their own homes. CTD Computer Network and Telephone Services will work on the technical and administrative details and will report progress in the next few months.

Contact Bob McMahon (data) at extension 2-7270 or Allen Winter (voice and teleconferencing) at extension 2-2764 with questions or suggestions and for applications.

### **FRACTIONAL T1 LINK TO IDAHO IN PRODUCTION**

The fractional T1 link to Idaho became operational in November 1992. The Transmission Control Protocol/Internet Protocol (TCP/IP) and the Digital Equipment Corporation network (DECnet) traffic are currently running over this link.

The upgraded link consists of a fractional T1 provided by MCI, Inc. and uses microwaves and fiber optics to carry 64,000 bits (64 kilobits) per second per channel. A second link will follow that will handle all other existing services to Idaho. With the installation of the second link, the aggregate capacity will be about six times the data transmission capacity of the two 9,600 bits-per-second telephone lines that had been available.

This upgrade was necessary because the older system could not handle the load now required by users at both ANL sites. Adding to the communications load is the increased activity of the Integral Fast Reactor (IFR) project coordinated between Argonne-West and Argonne-East.

The new system will have six times the capacity for about the same monthly cost. If more capacity is necessary, more links can be purchased from MCI.

### **NEW ADDITIONS TO BITNET UNIVERSITY NETWORK**

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,420 computers at over 1,225 sites. Since the last *Newsletter* article in October 1992, the following universities and organizations have joined BITnet:

Anahuac University--Mexico  
Essex Community College--Baltimore  
Jackson State University--Jackson, Mississippi  
New York State Legislature Bill Drafting  
Commission--Albany  
Public Association "International Computer  
Networks"--Yaroslav, Russia  
Technical University of Panama  
University of Cartagena--Colombia  
University of Catania--Italy

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the CTD VAX cluster, or MVS Wylbur):

#### **HELP BITNET NODES**

### **UNIX NEWS**

#### **SPI AVAILABLE FOR ASSESSING UNIX VULNERABILITIES**

Recently, CTD installed the Security Profile Inspector (SPI)/Unix Version 2.1 software in the Andrew File System (AFS). The Computer Security Research Center at Lawrence Livermore National Laboratory provides SPI/Unix and makes it available to the Department of Energy and other government sites. SPI/Unix assists system administrators in monitoring the security of computer systems by providing reports on potential vulnerabilities that may exist in computer systems.

The availability of the software from CTD is restricted to system administrators or computer

security representatives at the Laboratory. For authorization to gain access to this software, contact Pete Bertoncini at electronic mail address [pjb@anl.gov](mailto:pjb@anl.gov) or at extension 2-4827.

### **BITS & BYTES**

#### **PLANS TO DISCONTINUE CHESHIRE HEAT SENSITIVE LABELS**

Because of the high cost of the Cheshire heat sensitive labels and the age of the ANL equipment that applies Cheshire labels to documents and memoranda, Media Services plans to stop handling Cheshire labels in spring 1993. Users with applications that use CTD local printers to create Cheshire labels should begin now to redesign those applications to print on a different type of label. CTD will continue to provide the LBL35X1 (3 1/2" wide by 15/16" high) and LBL4X15 (4" wide by 1 7/16" high) adhesive labels. Contact the User Services consultants at extension 2-5405 for assistance.

Label media are widely available that enable laser printers to print adhesive labels that can be applied manually. Word processing applications contain various formats for maintaining and printing mailing labels. Media Services provides a service that takes mailing information on a diskette and prints addresses directly on envelopes. Media Services plans to acquire new equipment to apply adhesive labels to mailing materials automatically. Contact Bill Jepsen at extension 2-8159 for more information.

#### **ERRATUM: CTD RATES**

In the *Computing and Telecommunications Division Rates* appended to the November 1992 *Newsletter*, we inadvertently published the wrong rate for the library tape reel storage slot rental. The correct rate is \$0.08 per tape slot day. We regret any confusion that this error may have caused. Also, the unit for Asynchronous Ports (Dial-Up Only) was omitted and should read connect-hour.



## CUMULATIVE SUBJECT INDEX

Each December we publish the cumulative index from the *Newsletters* of previous years. Other monthly issues include an index only for the current calendar year.

CMS, central VAX, and central Unix services users may search the entire *Newsletter* index online for a particular *Newsletter* topic by entering:

**LOOKUP topic**

where "topic" is the name of the topic (one or more words) for which you need information. LOOKUP will display the topic entries on the user's terminal. Any VAX and Unix users with an Andrew File System (AFS) account can invoke LOOKUP and other locally provided utilities.

Wylbur users may use LOOKUP by entering

**DO LOOKUP**

and responding to the prompt for a topic. After the system has sent the information to your fetch queue, enter:

**FETCH topic**

Then enter:

**LIST**

The system will list the page numbers for every index entry containing the topic name.

For more information, enter:

**HELP LOOKUP**

## RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

## Computing and Telecommunications Documents

*Argonne National Laboratory Computing and Telecommunications Division Rates October 1, 1992* lists the processing rates of various computers as well as provides information about the computing services, batch services, and interactive services. This revised rate sheet supersedes the rate sheet of December 2, 1991.

## IBM Documents

The *IBM RACF General Information Manual* (GC28-0722-14) contains an overview and planning information for Version 1, Release 9 for MVS and VM of the program product Resource Access Control Facility (RACF). RACF is a program that provides system security, resource access control, auditability and accountability, and administrative control. Chapter 1 discusses the need for data security, provides a basic description of RACF, and identifies key RACF features. Chapter 2 provides a high-level introduction to RACF installation planning. Chapter 3 describes RACF functions (including RACF generalization, RACF-CICS/VS interaction, and RACF-IMS/VS interaction and tools). Chapter 4 summarizes the new functions provided in RACF Version 1, Release 9. Readers should be familiar with MVS or VM. This document supersedes the *RACF General Information Manual* (GC28-0722-12).

## University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (November 1992) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of October 1992.



## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD NOVEMBER 3, 1992

Pat Garner (Reactor Analysis) opened the meeting at 3:08 p.m.

**Andrew File System.** Doug Engert (Computing and Telecommunications) provided an update of the Andrew File System (AFS) running at ANL. CTD has held classes for system administrators and users. Doug feels the classes (which will be offered periodically) are worthwhile for those planning to use AFS. The ease of access to files on AFS depends on the degree to which the owner restricts file access and what system software has been installed on the user's normal host machine. CTD is testing the cache manager on machines other than the central AFS server and encourages other divisions to do this also. Having the cache manager running on the user's normal host system improves the performance of accessing AFS files; however, the cache manager needs at least 50 megabytes of disk space (and more space is preferable).

CTD is studying the infrastructure that must be put in place as a part of AFS, such as centralized databases for user authentication, resource-use authorization, and accounting for distributed servers and services. The initial step would be to create a centralized user identification database (that is, a common userid for all services).

Doug reminded us that AFS cells for many other sites (worldwide) are accessible to users at ANL because of our installation of AFS. Similarly, the files on ANL's AFS cell can be available to other sites running AFS (although this has not been decided yet).

Pete Bertoncini (Computing and Telecommunications) announced that AFS is being used as the central software repository for executables and databases that are shared among several machines. The amount of remote-host disk space needed for system software can be decreased significantly if the remote hosts reference this common software from AFS rather than having a complete set of files on the remote host. As an example, the software associated with the ANL utilities ANLPHONE, DOCUMENT, LOOKUP, and NEWS are now on AFS. Where nec-

essary, parallel versions of software have been installed for various machine architectures (for example, the Sun, IBM RS6000, and VAX/VMS). The VAX/VMS executables may be run directly from AFS on divisional VAX machines that are running the MultiNet Network File System (NFS) client software. Access to software with licensing restrictions is controlled by using the Access Control List function of AFS. Additional details on the use of AFS as a software repository are in several articles in the November 1992 *Newsletter*.

**IBM RS6000 Workstations Available for Use.** Larry Rudsinski (Computing and Telecommunications) reported that two IBM RS6000 Model 350 workstations are available for use as nodenames timon.ctd.anl.gov and titus.ctd.anl.gov. CTD has resolved the previous problems with linking these machines to the CTD Fiber Distributed Data Interface (FDDI). All registered users of achilles.ctd.anl.gov have been authorized to use timon and titus; these three machines share yellow pages and home file systems. Both of the IBM RS6000 machines are running the AFS cache manager, have the Distributed Queuing System software for batch job submission, and have one gigabyte of disk space for temporary (/tmp), swap, and cache files. Free user testing is available through November 15, 1992. Additional details on the configuration of these machines and the proposed charging are in "RS6000 Model 350 Available" in the October 1992 *Newsletter*.

**POSIX on VMS.** Rich Raffenetti (Computing and Telecommunications) announced that CTD has installed Version 1.1 of the Portable Operating System Interactive eXecutive (POSIX) on node ANLCV1 of the central VAX cluster (that is, the VAX 6410). POSIX is the name for a group of standards defining programming interfaces and behavior for operating system elements that the Institute of Electrical and Electronics Engineers is developing. The model for POSIX is the Unix operating system, which is licensed by AT&T for use on many different computers. Availability of POSIX on the VAX (1) allows a user with Unix experience to use the VAX without having to know the normal VAX/VMS operating system and (2) provides a platform to develop POSIX-compliant applications for export to other machines. Current users of the DEC-shell and Unix Tools operating environments on the VAX should begin to use the POSIX environment instead. Additional information on using POSIX is in "POSIX Available on Argonne Central VAX Cluster" in the November 1992 *Newsletter*.

Rich also announced that the memory on the VAX 6410 has been upgraded from 64 to 128 megabytes, which should reduce the paging activity on this machine. (See "VAX 6410 Memory Upgraded" in the November 1992 *Newsletter*.)

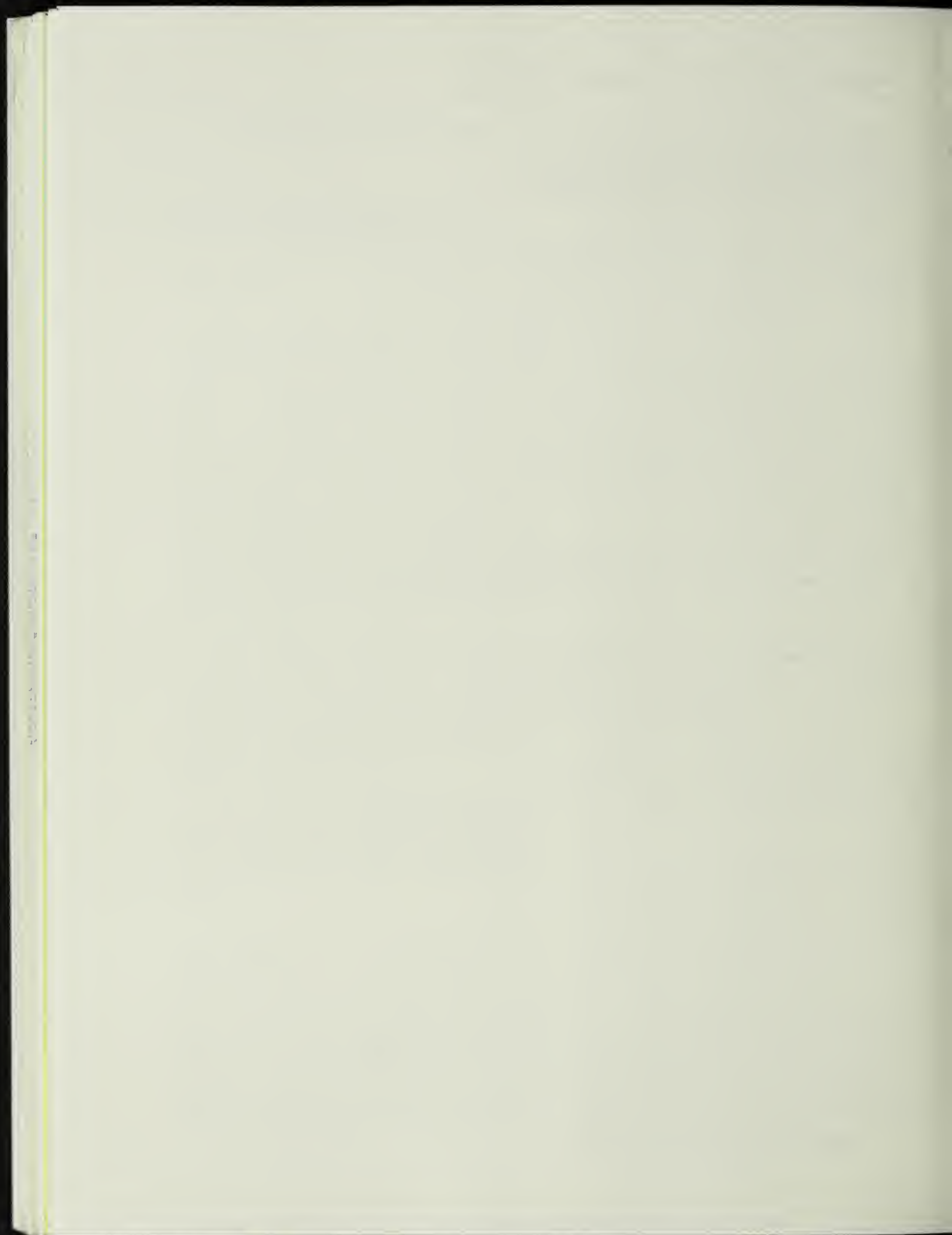
**Tape Management System Upgrade.** John Volmer (Computing and Telecommunications) reported on the progress to upgrade the Tape Management System (TMS) to Version 5.0. Our current Version, 4.7, is no longer maintained by Computer Associates, and the upgrade is needed prior to the change to the MVS/XA operating system on the IBM 3084. The installation of TMS 5.0 has been complicated by the need to carry forward a significant number of local modifications from TMS 4.7. No changes are necessary by users for TMS 5.0; however, new inquiry formats and response details will be available. TMS 5.0 is being tested within CTD and is scheduled to become the production version on December 7, 1992.

Also, John announced that MVS/XA will become the production operating system on the IBM 3084 on December 12, 1992 (that is, shortly after the cutover to TMS 5.0).

The Computer Users Group normally meets on the first Tuesday of each month at 3:00 p.m. in Building 221, Room A-216. Contact Pat Garner (extension 2-4872) or Ken Miles (extension 2-3095) to be placed on the distribution list for meeting announcements or for additional information.

The CUG meeting adjourned at 4:27 p.m.

Pat Garner, Acting CUG Secretary





# WORKLOAD STATISTICS (OCTOBER 1 THROUGH OCTOBER 29, 1992)

## NUMBER OF ENROLLED USERS

|             | BEGINNING OF MONTH | END OF MONTH | ACTIVE DURING MONTH |
|-------------|--------------------|--------------|---------------------|
| CMS         | 1,198              | 1,162        | 375                 |
| Wylbur      | 1,496              | 1,453        | 240                 |
| MVS TSO     | 57                 | 57           | 24                  |
| CICS        | 2,296              | 2,249        | 288                 |
| MVS Batch   | 2,296              | 2,249        | 546                 |
| VAX/VMS     | 866                | 846          | 161                 |
| Unix        | 355                | 313          | *                   |
| AFS         | *                  | 331          | *                   |
| All Systems | 2,296              | 2,249        | 853                 |

## INTERACTIVE AND BATCH USE

|                    | NUMBER OF SESSIONS OR JOBS RUN |        |         |        | SESSION    | CPU        |
|--------------------|--------------------------------|--------|---------|--------|------------|------------|
|                    | PRIME                          | NIGHT  | WEEKEND | TOTAL  | TIME (HRS) | TIME (HRS) |
| <b>INTERACTIVE</b> |                                |        |         |        |            |            |
| CMS                | 11,680                         | 4,757  | 3,453   | 19,890 | 40,643     | 92.04      |
| Wylbur             | 4,018                          | 217    | 151     | 4,386  | 4,793      | 2.63       |
| MVS TSO            | 606                            | 18     | 2       | 626    | 425        | 1.63       |
| VAX/VMS            | 7,189                          | 4,067  | 2,866   | 14,122 | 9,976      | 93.63      |
| <b>IBM BATCH</b>   |                                |        |         |        |            |            |
| Class U            | 6,606                          | 1,614  | 877     | 9,097  | **         | 16.65      |
| Class W            | 11,735                         | 2,771  | 1,440   | 15,946 | **         | 143.49     |
| Class X            | 0                              | 958    | 0       | 958    | **         | 15.79      |
| Class Y            | 0                              | 0      | 119     | 119    | **         | 7.77       |
| Nonmain            | 18,526                         | 7,053  | 1,478   | 27,057 | **         | 0.00       |
| Total              | 36,867                         | 12,396 | 3,914   | 53,177 | **         | 183.70     |
| <b>VMS BATCH</b>   |                                |        |         |        |            |            |
| W BATCH            | 713                            | 586    | 118     | 1,417  | **         | 7.87       |
| X BATCH            | 1                              | 0      | 1       | 2      | **         | 25.67      |
| Y BATCH            | 0                              | 0      | 0       | 0      | **         | 0.00       |
| Total              | 714                            | 586    | 119     | 1,419  | **         | 33.54      |

## INPUT/OUTPUT

|                             |            |
|-----------------------------|------------|
| Lines Printed               |            |
| Local                       | 61,817,867 |
| Remote                      | 43,437,654 |
| Fiche                       | 35,234,420 |
| Tape Mounts                 | 6,446      |
| Microfiche Developed        | 5,021      |
| Microfiche Frames Developed | 794,561    |

## GRAPHICS

|                      | # OF JOBS | # OF FRAMES |
|----------------------|-----------|-------------|
| CalComp Jobs         | 73        | *           |
| Matrix 35mm Color    | 81        | 147         |
| Seiko (Paper)        | 201       | 877         |
| Seiko (Transparency) | 178       | 469         |

## DATA MANAGEMENT

|                             |        |
|-----------------------------|--------|
| Total Tapes Stored          | 24,131 |
| Round Tapes Saved           | 88     |
| Round Tapes Released        | 182    |
| Cartridges Saved            | 1,666  |
| Cartridges Released         | 1,397  |
| Datasets Exported to Tape   | 417    |
| Datasets Imported from Tape | 331    |

\* not available

\*\* not applicable

**COMPUTING CENTER USE IN DOLLARS BY COST CENTER (OCTOBER 1 THROUGH OCTOBER 29, 1992)**

| CC                                                    | CCNAME                        | IBM      | VAX      | UNIX    | NETWORK  | PERIPHERAL | CCTOTAL   |
|-------------------------------------------------------|-------------------------------|----------|----------|---------|----------|------------|-----------|
| <b>ADVANCED PHOTON SOURCE</b>                         |                               |          |          |         |          |            |           |
| 131                                                   | ACCELERATOR SYS DIV           | \$255    | \$1      | \$0     | \$3      | \$267      | \$525     |
| 132                                                   | EXP FACIL DIV                 | \$103    | \$0      | \$0     | \$0      | \$223      | \$327     |
| 133                                                   | APS PROJECT OFFICE            | \$0      | \$0      | \$0     | \$48     | \$0        | \$48      |
| 272                                                   | ADVANCED PHOTON SOURCE PRO    | \$200    | \$3      | \$0     | \$87     | \$59       | \$349     |
| 341                                                   | APS ACCELERATOR PHYSICS       | \$203    | \$4,644  | \$30    | \$40     | \$93       | \$5,011   |
| 342                                                   | APS DIAGNOSTICS               | \$2      | \$12     | \$0     | \$0      | \$2        | \$16      |
| 343                                                   | APS LINAC                     | \$0      | \$82     | \$0     | \$0      | \$0        | \$82      |
| 344                                                   | APS RF                        | \$2      | \$62     | \$30    | \$9      | \$0        | \$104     |
| 345                                                   | APS VACUUM/MECHANICAL ENG.    | \$7      | \$2,026  | \$292   | \$17     | \$243      | \$2,585   |
| 347                                                   | APS CONTROLS                  | \$41     | \$55     | \$0     | \$0      | \$61       | \$157     |
| 348                                                   | APS MAGNETS                   | \$46     | \$28     | \$0     | \$11     | \$263      | \$349     |
| 349                                                   | APS POWER SUPPLIES            | \$23     | \$0      | \$0     | \$0      | \$0        | \$23      |
| 350                                                   | APS DIVISION MANAGEMENT       | \$0      | \$15     | \$0     | \$0      | \$0        | \$15      |
| 351                                                   | APS INSERTION DEVICES         | \$27     | \$705    | \$15    | \$43     | \$28       | \$808     |
| 352                                                   | APS ENGINEERED SYSTEMS        | \$46     | \$353    | \$25    | \$10     | \$11       | \$445     |
| 353                                                   | APS BEAM LINE INSTRUMENTAT    | \$12     | \$427    | \$0     | \$25     | \$106      | \$570     |
| 360                                                   | APS CONVENTIONAL FACILITIE    | \$5      | \$0      | \$0     | \$0      | \$0        | \$5       |
| 361                                                   | APS PROJECT DIRECTION         | \$84     | \$34     | \$73    | \$339    | \$680      | \$1,210   |
| SUBTOTAL                                              |                               | \$1,058  | \$8,448  | \$465   | \$633    | \$2,035    | \$12,639  |
| <b>ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH</b> |                               |          |          |         |          |            |           |
| 110                                                   | BIO & MED RES DIV             | \$376    | \$2,596  | \$273   | \$838    | \$1,080    | \$5,164   |
| 125                                                   | TECHNOLOGY TRANSFER CENTER    | \$70     | \$32     | \$34    | \$7      | \$257      | \$401     |
| 149                                                   | ENVIRONMENTAL RESEARCH DIV    | \$1,264  | \$1,202  | \$210   | \$595    | \$1,649    | \$4,919   |
| 155                                                   | ENERGY SYSTEMS DIVISION       | \$1,920  | \$1,372  | \$403   | \$371    | \$1,596    | \$5,662   |
| 161                                                   | IPD-TECH INFO SERV            | \$449    | \$32,058 | \$0     | \$3,372  | \$692      | \$36,571  |
| 165                                                   | ENV ASSESS & INFO SCI DIV     | \$4,635  | \$2,418  | \$459   | \$197    | \$2,154    | \$9,863   |
| 260                                                   | IPD-MEDIA SERV DEPT           | \$158    | \$2,438  | \$0     | \$52     | \$320      | \$2,968   |
| 265                                                   | IPD-TECH COM SERV             | \$191    | \$0      | \$0     | \$1      | \$17       | \$208     |
| 274                                                   | ENER/ENV/BIO RES PROG ADM     | \$162    | \$15     | \$0     | \$1      | \$389      | \$567     |
| 288                                                   | INF & PUBL DIV                | \$40     | \$18     | \$0     | \$2      | \$215      | \$275     |
| SUBTOTAL                                              |                               | \$9,265  | \$42,149 | \$1,379 | \$5,435  | \$8,369    | \$66,597  |
| <b>ENGINEERING RESEARCH</b>                           |                               |          |          |         |          |            |           |
| 102                                                   | IFR OPERATIONS DIVISION       | \$3,159  | \$12     | \$371   | \$2,561  | \$401      | \$6,505   |
| 104                                                   | FUELS AND ENGINEERING DIVI    | \$454    | \$142    | \$90    | \$368    | \$230      | \$1,284   |
| 107                                                   | CHEMICAL TECHNOLOGY DIVISI    | \$1,572  | \$101    | \$265   | \$571    | \$701      | \$3,210   |
| 112                                                   | REACTOR ENGINEERING DIVISI    | \$2,003  | \$763    | \$629   | \$754    | \$2,440    | \$6,589   |
| 114                                                   | MATLS & COMP TECH DIV         | \$10,167 | \$1,023  | \$692   | \$580    | \$2,848    | \$16,309  |
| 115                                                   | ENGINEERING PHYSICS DIVISI    | \$2,612  | \$1,753  | \$342   | \$1,691  | \$2,374    | \$8,772   |
| 116                                                   | REACTOR ANALYSIS DIVISION     | \$28,122 | \$1,868  | \$5,853 | \$6,639  | \$9,420    | \$51,901  |
| 117                                                   | ENGINEERING PHYSICS DIV -     | \$752    | \$63     | \$120   | \$49     | \$635      | \$1,620   |
| 118                                                   | FUEL CYCLE DIVISION           | \$930    | \$2,698  | \$122   | \$183    | \$455      | \$4,387   |
| 197                                                   | SPECIAL PROJECTS OFFICE       | \$943    | \$2      | \$30    | \$84     | \$446      | \$1,505   |
| 211                                                   | ENGR PHYS DIV - DESIGN ENG    | \$19     | \$0      | \$0     | \$6      | \$206      | \$231     |
| 269                                                   | ANALYTICAL CHEMISTRY LABOR    | \$156    | \$16     | \$0     | \$10     | \$429      | \$612     |
| 271                                                   | ENG RES PROG ADMIN            | \$355    | \$31     | \$174   | \$119    | \$741      | \$1,420   |
| SUBTOTAL                                              |                               | \$51,244 | \$8,473  | \$8,689 | \$13,616 | \$22,324   | \$104,346 |
| <b>PHYSICAL RESEARCH</b>                              |                               |          |          |         |          |            |           |
| 105                                                   | MATERIALS SCIENCE DIVISION    | \$410    | \$1,467  | \$446   | \$694    | \$822      | \$3,840   |
| 109                                                   | PHYSICS DIV                   | \$1,540  | \$626    | \$206   | \$923    | \$660      | \$3,955   |
| 120                                                   | CHEMISTRY DIV                 | \$527    | \$1,437  | \$3,938 | \$343    | \$676      | \$6,921   |
| 136                                                   | INT PULSE NEUT SOURCE PROG    | \$158    | \$93     | \$141   | \$301    | \$604      | \$1,297   |
| 137                                                   | HIGH ENERGY PHYSICS DIV       | \$299    | \$788    | \$438   | \$696    | \$1,215    | \$3,436   |
| 139                                                   | DIV OF EDUCATIONAL PROGRAM    | \$657    | \$0      | \$15    | \$262    | \$413      | \$1,348   |
| 145                                                   | MATHEMATICS & COMPUTER SCI    | \$204    | \$44     | \$15    | \$76     | \$422      | \$761     |
| 146                                                   | CTD DIV - SCI APPL & RES      | \$40     | \$156    | \$1,155 | \$17     | \$7        | \$1,375   |
| 273                                                   | PHYSICAL RESEARCH PROGRAM     | \$96     | \$15     | \$0     | \$55     | \$221      | \$387     |
| SUBTOTAL                                              |                               | \$3,931  | \$4,627  | \$6,354 | \$3,367  | \$5,041    | \$23,320  |
| <b>EXTERNAL</b>                                       |                               |          |          |         |          |            |           |
| 751                                                   | FERMI NATIONAL LABORATORY     | \$376    | \$0      | \$0     | \$901    | \$937      | \$2,214   |
| 752                                                   | NAVY                          | \$4,175  | \$0      | \$0     | \$799    | \$3,717    | \$8,692   |
| 753                                                   | MORGANTOWN ENERGY TECH CENTER | \$5      | \$0      | \$0     | \$0      | \$0        | \$5       |
| 754                                                   | DEPARTMENT OF ENERGY AT ANL   | \$0      | \$2      | \$0     | \$4      | \$0        | \$6       |
| 777                                                   | UNIVERSITY OF CHICAGO AT ANL  | \$10     | \$0      | \$0     | \$160    | \$0        | \$170     |
| 778                                                   | ARGONNE CREDIT UNION          | \$5      | \$0      | \$0     | \$0      | \$0        | \$5       |
| 779                                                   | UNIVERSITY OF ILLINOIS AT CHI | \$5      | \$0      | \$0     | \$0      | \$0        | \$5       |
| 780                                                   | NEW BRUNSWICK LABORATORY      | \$7      | \$0      | \$0     | \$0      | \$0        | \$7       |
| 782                                                   | PACKER ENGINEERING            | \$2      | \$3      | \$30    | \$0      | \$0        | \$35      |
| 783                                                   | WEST VALLEY NUCLEAR SERVICES  | \$6      | \$0      | \$0     | \$0      | \$0        | \$6       |
| 784                                                   | SSC LABORATORY                | \$0      | \$40     | \$138   | \$0      | \$0        | \$178     |
| 790                                                   | GRUMANN AEROSPACE             | \$0      | \$0      | \$30    | \$0      | \$0        | \$30      |
| 792                                                   | NATIONAL ACADEMY OF SCIENCES  | \$189    | \$2      | \$0     | \$55     | \$159      | \$405     |
| SUBTOTAL                                              |                               | \$4,780  | \$48     | \$198   | \$1,918  | \$4,813    | \$11,758  |

| CC  | CCNAME                        | IBM       | VAX        | UNIX     | NETWORK  | PERIPHERAL | CCTOTAL   |
|-----|-------------------------------|-----------|------------|----------|----------|------------|-----------|
|     |                               |           | OPERATIONS |          |          |            |           |
| 140 | ENVIR & WASTE MGMT PROG       | \$18      | \$0        | \$0      | \$23     | \$22       | \$62      |
| 143 | SUPP SERV DIV - ELEC DEPT     | \$364     | \$2        | \$0      | \$305    | \$420      | \$1,092   |
| 148 | HUMAN RESOURCES-MEDICAL DE    | \$4,627   | \$0        | \$0      | \$397    | \$1,257    | \$6,281   |
| 150 | SUPPORT SERV DIV - SPEC MA    | \$177     | \$0        | \$0      | \$34     | \$337      | \$548     |
| 201 | OFFICE OF THE DIRECTOR        | \$124     | \$0        | \$0      | \$154    | \$261      | \$539     |
| 202 | OFC OF CHIEF OPER OFCR        | \$28      | \$0        | \$16     | \$118    | \$201      | \$364     |
| 210 | SUPP SERV DIV - CENT SHOPS    | \$357     | \$0        | \$0      | \$100    | \$482      | \$939     |
| 216 | SUPPORT SERVICES DIVISION     | \$114     | \$0        | \$0      | \$9      | \$214      | \$337     |
| 222 | PLANT FAC & SERV-LODGING F    | \$0       | \$0        | \$0      | \$0      | \$200      | \$200     |
| 232 | SUPPORT SERV DIV - SECURIT    | \$187     | \$0        | \$0      | \$2      | \$262      | \$450     |
| 234 | ESH DIV-HEALTH PHY            | \$270     | \$473      | \$30     | \$123    | \$360      | \$1,238   |
| 235 | ESH DIV-FIRE DEPT             | \$2,407   | \$63       | \$46     | \$255    | \$960      | \$3,730   |
| 236 | COMPUTING AND TELECOM DIV     | \$17      | \$0        | \$0      | \$0      | \$201      | \$218     |
| 245 | COMP & TEL DIV - COM SERV     | \$24,644  | \$0        | \$0      | \$5,034  | \$4,145    | \$33,823  |
| 247 | OFFICE OF PUBLIC AFFAIRS      | \$2,263   | \$1        | \$0      | \$198    | \$2,206    | \$4,668   |
| 275 | OFC PUB AF - MOTN PIC UNIT    | \$992     | \$0        | \$0      | \$54     | \$390      | \$1,436   |
| 276 | TELECOM COST/RECOVERY         | \$59      | \$0        | \$0      | \$1      | \$23       | \$83      |
| 296 | SUPP SERV DIV-MATLS & SERV    | \$0       | \$0        | \$0      | \$75     | \$0        | \$75      |
| 315 | PLANT FAC & SERV-VEH MAINT    | \$3,729   | \$0        | \$0      | \$934    | \$708      | \$5,391   |
| 316 | PLANT FAC & SERV-DRIV&RIG     | \$0       | \$0        | \$0      | \$0      | \$323      | \$323     |
| 317 | SUPP SERV DIV-TRAVEL OFC      | \$38      | \$0        | \$0      | \$1      | \$201      | \$240     |
| 319 | SUPP SERV DIV-PROCUREMENT     | \$0       | \$0        | \$0      | \$0      | \$200      | \$200     |
| 322 | EQO-INDIRECT                  | \$166     | \$0        | \$0      | \$68     | \$339      | \$574     |
| 331 | ENVIR SAFE HEALTH & QA OVE    | \$8       | \$0        | \$0      | \$4      | \$0        | \$11      |
| 333 | SUPP SERV DIV - INSPECTION    | \$839     | \$21       | \$15     | \$102    | \$829      | \$1,807   |
| 336 | OFC OF CHIEF FIN OFFICER      | \$36      | \$0        | \$0      | \$0      | \$2        | \$38      |
| 400 | ACCOUNTING                    | \$59,179  | \$0        | \$15     | \$4,440  | \$21,089   | \$84,722  |
| 401 | BUDGET OFFICE                 | \$0       | \$0        | \$0      | \$7      | \$0        | \$7       |
| 403 | HUMAN RESOURCES DEPARTMENT    | \$2       | \$0        | \$0      | \$0      | \$0        | \$2       |
| 410 | HP-AFFIRM ACTION PROG         | \$25,511  | \$16       | \$0      | \$1,498  | \$5,532    | \$32,556  |
| 412 | PLANT FAC & SERV-BLDG MAIN    | \$60      | \$0        | \$0      | \$55     | \$201      | \$315     |
| 501 | PLANT FAC & SERV-INSTALLAT    | \$54      | \$0        | \$0      | \$61     | \$620      | \$735     |
| 502 | PLANT FAC & SERV-GROUNDS      | \$48      | \$0        | \$0      | \$15     | \$216      | \$279     |
| 503 | PLANT FAC & SERV-CUSTODIAL    | \$0       | \$0        | \$0      | \$0      | \$200      | \$200     |
| 504 | ENM-WASTE MGMT OPER           | \$2       | \$0        | \$0      | \$0      | \$200      | \$202     |
| 505 | PLANT FAC & SERV-PLANT MGR    | \$0       | \$0        | \$0      | \$57     | \$200      | \$257     |
| 506 | PLANT FAC & SERV-OPERATION    | \$1,051   | \$0        | \$0      | \$49     | \$675      | \$1,776   |
| 509 | PLANT FAC & SERV-UTILITY S    | \$0       | \$0        | \$0      | \$0      | \$86       | \$86      |
| 510 | PLANT FAC & SERV-FAC PLNG/    | \$0       | \$0        | \$0      | \$0      | \$225      | \$225     |
| 512 | REACTOR PROG SERV - DIV OF    | \$1,899   | \$39       | \$0      | \$135    | \$578      | \$2,652   |
| 530 | REACTOR PROG SERV - HUMAN RE  | \$59      | \$0        | \$0      | \$1      | \$202      | \$262     |
| 531 | REACTOR PROG SERV - SPECIA    | \$143     | \$0        | \$0      | \$5      | \$200      | \$349     |
| 532 | REACTOR PROG SERV - ACCOUN    | \$857     | \$0        | \$0      | \$255    | \$432      | \$1,545   |
| 533 | REACTOR PROG SERV - PROCUR    | \$0       | \$0        | \$0      | \$0      | \$200      | \$200     |
| 534 | REACTOR PROG SERV - SECURI    | \$0       | \$0        | \$0      | \$0      | \$200      | \$200     |
| 535 | REACTOR PROG SERV - ENVI SAFE | \$0       | \$0        | \$0      | \$0      | \$200      | \$200     |
| 536 | REACTOR PROG SERV - INVO S    | \$2       | \$0        | \$0      | \$0      | \$200      | \$202     |
| 537 | REACTOR PROG SERV - SUPPLY    | \$0       | \$0        | \$0      | \$8      | \$200      | \$208     |
| 538 | REACTOR PROG SERV - GEN EX    | \$79      | \$0        | \$0      | \$86     | \$0        | \$636     |
| 548 | COMPUTER APPL & SERV - ANL-W  | \$550     | \$0        | \$0      | \$0      | \$200      | \$207     |
| 550 | FE DIV-COM AND COMP SERV      | \$7       | \$1        | \$0      | \$10     | \$0        | \$59      |
| 552 | FE DIV-MACHINE SHOP           | \$49      | \$0        | \$0      | \$2      | \$200      | \$229     |
| 554 | FE DIV-ENGINEERING            | \$27      | \$0        | \$0      | \$8      | \$200      | \$326     |
| 556 | IFR DIV-PLANT SERV-S/R        | \$118     | \$0        | \$0      | \$0      | \$200      | \$200     |
| 557 | IFR DIV-PLANT SERV-FUNCTIO    | \$0       | \$0        | \$0      | \$23     | \$0        | \$144     |
| 558 | REACTOR PROG SERV - REC &     | \$120     | \$0        | \$0      | \$0      | \$202      | \$209     |
| 561 | AW-ESH/QA OVERSIGHT           | \$7       | \$0        | \$30     | \$0      | \$0        | \$50      |
| 570 |                               | \$20      | \$0        |          |          |            |           |
|     | SUBTOTAL                      | \$131,307 | \$617      | \$152    | \$14,728 | \$47,404   | \$194,208 |
|     | TOTAL                         | \$201,585 | \$64,361   | \$17,237 | \$39,698 | \$89,986   | \$412,867 |



## COMPUTING CENTER TELEPHONE NUMBERS

| Information and Assistance             | Onsite<br>(Illinois)                  | Onsite<br>(Idaho) | Offsite<br>(Area Code 708) |
|----------------------------------------|---------------------------------------|-------------------|----------------------------|
| Network Operations Center              | 2-5421                                | 8-708-252-5421    | 252-5421                   |
| Current System Status Recorded Message | 2-5466                                | 8-708-252-5466    | 252-5466                   |
| User Consultant                        | 2-5405                                | 8-708-252-5405    | 252-5405                   |
| Documentation                          | 2-5405                                | 8-708-252-5405    | 252-5405                   |
| Computer Operations                    | 2-5421                                | 8-708-252-5421    | 252-5421                   |
| VM/SP Operator                         | 2-8442                                | 8-708-252-8442    | 252-8442                   |
| RADS Maintenance                       | 2-7273                                | n.a.              | 252-7273                   |
| Computer Callback Service              | 1-800-332-1478 (only within Illinois) |                   |                            |

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

|                                                                             |         |      |           |
|-----------------------------------------------------------------------------|---------|------|-----------|
| IBM 3270 Protocol Converter                                                 |         |      |           |
| 1200 to 19.2K Bits Per Second (Onsite)                                      | 2-3270  | n.a. |           |
| 1200 to 2400 Bits Per Second (Offsite)                                      |         |      | 252-3270  |
| 9600 to 19.2K Bits Per Second (Offsite)                                     |         |      | 252-3219  |
| X.25 Terminal Multiplexor                                                   |         |      |           |
| 300 to 19.2K Bits Per Second (Onsite)                                       | 2-2525  | n.a. |           |
| 1200 to 2400 Bits Per Second (Offsite)                                      |         |      | 252-2525  |
| 9600 to 19.2K Bits Per Second (Offsite)                                     |         |      | 252-2519  |
| IBM 3174 Cluster Controller                                                 | 2-3174  | n.a. | n.a.      |
| 1,200 Bits Per Second Full-Duplex<br>(Bell 212 and Hayes Compatible Modems) | 2-2212  | n.a. | 252-2212  |
| 1,200 Bits Per Second Full-Duplex<br>(Vadic 3400 Compatible Modems)         | 2-7612  | n.a. | 252-7612  |
| 300 Bits Per Second                                                         | 2-7603* | n.a. | 252-7603* |

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

|                                                                          |        |      |          |
|--------------------------------------------------------------------------|--------|------|----------|
| 2,000 or 2,400 Bits Per Second<br>(Bell 201A and 201C Compatible Modems) | 2-7989 | n.a. | 252-7989 |
| 4,800 Bits Per Second<br>(Bell 208B Compatible Modems)                   | 2-7573 | n.a. | 252-7573 |

### Central DEC VAX Cluster

|                                         |        |      |          |
|-----------------------------------------|--------|------|----------|
| 1200 to 19.2K Bits Per Second (Onsite)  | 2-8700 | n.a. |          |
| 1200 to 2400 Bits Per Second (Offsite)  |        |      | 252-8700 |
| 9600 to 19.2K Bits Per Second (Offsite) |        |      | 252-8745 |

### Argonne TCP/IP Network

|                                         |        |      |          |
|-----------------------------------------|--------|------|----------|
| 1200 to 19.2K Bits Per Second (Onsite)  | 2-5588 | n.a. |          |
| 1200 to 2400 Bits Per Second (Offsite)  |        |      | 252-5588 |
| 9600 to 19.2K Bits Per Second (Offsite) |        |      | 252-4726 |

### Argonne ESnet Dial-Up

|                              |        |      |          |
|------------------------------|--------|------|----------|
| 300 to 19.2K Bits Per Second | 2-7920 | n.a. | 252-7920 |
|------------------------------|--------|------|----------|

## COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

|                       | Unix-Based<br>Services       | MVS JES3<br>Batch,<br>Wylbur,<br>and TSO | VM/XA                        | VMS                          |
|-----------------------|------------------------------|------------------------------------------|------------------------------|------------------------------|
| Monday to<br>Thursday | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00             | 00:00-04:00**<br>07:00-24:00 | 00:00-04:00**<br>07:00-24:00 |
| Friday to<br>Sunday   | 00:00-24:00                  | 00:00-24:00                              | 00:00-24:00                  | 00:00-24:00                  |

\*\* Service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

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Argonne National Laboratory  
Computing and Telecommunications Division  
December 1992 and January 1993

### COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering 14 classes. For information about a class, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). To register for a class, see your Training Management System (TMS) representative. A copy of the "Enrollment Form" is on page 6 and a list of TMS representatives is on page 7 of the Human Resources *Program and Course Guide* (Fall/Winter 1992). Also, a copy of the "Enrollment Form" appears after the classes. All prospective attendees should register so that we can gauge the size of the classes and notify attendees of any schedule changes. CTD may reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class. If necessary, CTD will schedule additional classes. If you cannot attend a class, please cancel your reservation at least *one week* before the class. Since the space in some classes is limited, there will be no refund for those who register for a charged class but do not attend.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

December 1992

| Sunday | Monday | Tuesday | Wednesday                  | Thursday                   | Friday                                   | Saturday |
|--------|--------|---------|----------------------------|----------------------------|------------------------------------------|----------|
|        |        | 1       | 2                          | 3<br>9:00<br>AFS<br>(#637) | 4<br>9:00<br>AFS<br>Sys Admin<br>(#638)  | 5        |
| 6      | 7      | 8       | 9<br>9:00<br>DQS<br>(#617) | 10                         | 11<br>9:00<br>Parallel Fortran<br>(#639) | 12       |
| 13     | 14     | 15      | 16                         | 17                         | 18                                       | 19       |
| 20     | 21     | 22      | 23                         | 24                         | 25                                       | 26       |
| 27     | 28     | 29      | 30                         | 31                         |                                          |          |

January 1993

| Sunday | Monday                            | Tuesday | Wednesday                      | Thursday                     | Friday                                            | Saturday |
|--------|-----------------------------------|---------|--------------------------------|------------------------------|---------------------------------------------------|----------|
|        |                                   |         |                                |                              | 1                                                 | 2        |
| 3      | 4                                 | 5       | 6                              | 7                            | 8<br>9:00<br>Facilities &<br>Services<br>(#293)   | 9        |
| 10     | 11<br>9:00<br>VI Editor<br>(#619) | 12      | 13<br>9:00<br>EMACS<br>(#616)  | 14<br>9:00<br>UNIX<br>(#564) | 15<br>9:00<br>VAX/VMS<br>(#289)                   | 16       |
| 17     | 18<br>9:00<br>UNIX<br>(#564)      | 19      | 20<br>9:00<br>WYLBUR<br>(#288) | 21                           | 22<br>9:00<br>Programming<br>in VAX/VMS<br>(#286) | 23       |
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| 31     |                                   |         |                                |                              |                                                   |          |

### **INTRODUCTION TO THE ANDREW FILE SYSTEM (AFS) (COURSE #637)**

Goals: To learn the basic concepts of AFS and the differences between AFS and the regular Unix file systems.

Length of Class: One 3-hour session

Dates and Time: December 3, 1992 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Instructor: Pete Bertoncini

Charge: \$25

### **INTRODUCTION TO THE ANDREW FILE SYSTEM (AFS) FOR SYSTEM ADMINISTRATORS (COURSE #638)**

Goals: To learn about additional concepts, the installation alternatives for different workstation configurations, and the details of AFS Client administration.

Prerequisite: "Introduction to the Andrew File System (AFS)" course

Length of Class: One 3-hour session

Dates and Time: December 4, 1992 (Friday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Instructor: Pete Bertoncini

Charge: \$25

### **USING UNIX WORKSTATIONS AND THE DISTRIBUTED QUEUING SYSTEM (DQS) FOR BATCH COMPUTING (COURSE #617)**

Goals: To learn to use DQS for submitting and managing batch jobs on Unix workstations.

Length of Class: One 3-hour lecture and one 2 1/2-hour lab

Date and Times: December 9, 1992 (Wednesday)  
9:00 a.m. to noon (Lecture)  
1:30 p.m. to 4:00 p.m. (Lab)

Location: Building 221, Room A-142

Instructor: Larry Rudsinski

Charge: \$25



### **DEVELOPING DISTRIBUTED FORTRAN AND C APPLICATIONS (COURSE #639)**

Goals: To learn how to use readily available parallel support libraries in writing distributed applications.

Length of Class: One 6-hour session

Date and Time: December 11, 1992 (Friday), 9 a.m. to 4:30 p.m. with 1 1/2 hour lunch break

Location: Building 221, Room A-142

Instructor: Steve Karlovsky

Charge: \$50

### **GETTING STARTED WITH THE ADVANCED VISUALIZATION SYSTEM (AVS) (RESCHEDULED) (COURSE #618)**

Goals: To learn how to set up and use AVS, how to create input files for AVS, and how to use the AVS module-network editor.

Length of Class: One 3-hour lecture with optional lab

Dates and Times: Section 1: December 14, 1992 (Monday)  
9:00 a.m. to noon (Lecture)  
1:30 p.m. to 4:00 p.m. (Lab)

Section 2: January 29, 1993 (Friday)  
9:00 a.m. to noon (Lecture)  
1:30 p.m. to 4:00 p.m. (Lab)

Location: Building 221, Room A-142

Instructor: Fred Dech

Charge: \$25

### **INTRODUCTION TO COMPUTING FACILITIES AND SERVICES (COURSE #293)**

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: January 8, 1993 (Friday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336, Revision 2)  
*Recommended Documentation for Computer Users at ANL* (ANL/TM 379, Revision 3)

Instructor: Fred Moszur

Charge: None

### USING THE VI EDITOR IN UNIX (COURSE #619)

Goals: To learn to use the vi interactive text editor effectively.

Length of Class: One 3-hour session

Date and Time: January 11, 1993 (Monday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Instructor: Steve Karlovsky

Charge: \$25

### USING THE EMACS EDITOR IN UNIX (COURSE #616)

Goals: To learn how to use the GNU EMACS editor (including the fundamentals of editing text, C code, and Fortran code). To learn how to compile under EMACS, to invoke shells, to edit the directory, to use mail, and to customize the editor for standard and X Window systems.

Length of Class: One 3-hour session

Date and Times: January 13, 1993 (Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-142

Instructor: Henry Kono

Charge: \$25

### INTRODUCTION TO UNIX (COURSE #564)

Goals: To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.

Prerequisite: Working knowledge of Unix editor or concurrent enrollment in "Using the VI Editor in Unix" (Course #619) or "Using the EMACS Editor in Unix" (Course #616).

Length of Class: Two 4-hour lectures with labs

Dates and Times: January 14, 1993 (Thursday) and January 18, 1993 (Monday)  
9:00 a.m. to 2:30 p.m. (Lecture and Lab) with 1 1/2 hour lunch break

Location: Building 221, Room A-142

Suggested Reading: *A Practical Guide to the Unix System* (0-8053-0243-3)

Instructors: Pete Bertoncini  
Steve Karlovsky

Charge: \$50



## INTRODUCTION TO VAX/VMS (COURSE #289)

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: January 15, 1993 (Friday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *VMS User's Manual* (AA-LA98B-TE)

Instructor: Dave Lifka

Charge: \$25

## INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING (COURSE #288)

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

Length of Class: One 3-hour lecture with lab

Date and Time: January 20, 1993 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-142

Suggested Reading: *SLAC Wylbur Tutorial*  
*OBS Wylbur Reference Manual*

Instructor: Mike Thommes

Charge: None

### PROGRAMMING IN VAX/VMS (COURSE #286)

|                  |                                                                                                                                                                                                                                                                                                                                                              |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Goals:           | To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance. |
| Length of Class: | One 3-hour session                                                                                                                                                                                                                                                                                                                                           |
| Date and Time:   | January 22, 1993 (Friday), 9:00 a.m. to noon                                                                                                                                                                                                                                                                                                                 |
| Location:        | Building 221, Room A-142                                                                                                                                                                                                                                                                                                                                     |
| Instructor:      | Dave Lifka                                                                                                                                                                                                                                                                                                                                                   |
| Charge:          | \$25                                                                                                                                                                                                                                                                                                                                                         |

### USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS (COURSE #273)

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Goals:             | To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal capable of using the Hydra Protocol Converter. To learn to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports. |
| Length of Class:   | Two 3-hour lectures with labs                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Dates and Time:    | January 27, 1993 (Wednesday) and January 28, 1992 (Thursday), 9:00 a.m. to noon                                                                                                                                                                                                                                                                                                                                                                                                       |
| Location:          | Building 221, Room A-142                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Suggested Reading: | <i>IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer</i> (SC23-0368-0)<br><i>CMS at ANL</i> (ANL/TM 423, Revision 2)                                                                                                                                                                                                                                                                                                             |
| Instructors:       | Pete Bertoncini<br>Mike Thommes                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Charge:            | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

| Course Name | Course Title                                |
|-------------|---------------------------------------------|
| SLFTEACH    | Introduction and Advanced Concepts of Xedit |

### DEC CBT Courses on the Central VAX 6410 (node ANLCV1)

(Enter RUN "course name" at the DCL level.)

|         |                                               |
|---------|-----------------------------------------------|
| VMSCAI  | Introduction to VAX/VMS                       |
| LSECAI  | Introduction to the Language Sensitive Editor |
| EVECAI  | Introduction to the Extensible VAX Editor     |
| DTRCAI  | Datatrieve for Users                          |
| DTRPCAI | Datatrieve for Programmers                    |

## ENROLLMENT FORM

Instructions:  
Photocopy this form, complete it, and give it to your TMS Representative.

Please enroll me in the following course(s):

| Course Number | Course Name | Date/Time |
|---------------|-------------|-----------|
| _____         | _____       | _____     |
| _____         | _____       | _____     |
| _____         | _____       | _____     |

Name \_\_\_\_\_ Badge \_\_\_\_\_

Division/Department \_\_\_\_\_ Building \_\_\_\_\_ Location \_\_\_\_\_ Phone \_\_\_\_\_

Division/Department Approval \_\_\_\_\_  
(If required)

Divisional Overhead Account \_\_\_\_\_  
(Required for select courses - see course description)

**NOTE: Forward Divisional Overhead Account Information to OD/EEP, Human Resources.**











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